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Mursinna : Osiander : Weissbrod.

A STUDY OF FORCEPS.

By ALBAN DORAN, F.R.C.S.

I. MURSINNA'S FORCEPS.

AMONG the obstetrical instruments in the series which once formed the Museum of the Obstetrical Society of London and is now deposited in the Museum of the College of Surgeons as a loan collection from the Royal Society of Medicine, is a very powerful forceps of the Levret type. Each limb is forged out of one piece of steel. The left bears a pin in the depressed portion of the lock, and a screw is fixed below the lock forming an axle on which revolves a radial block-lock $2\frac{1}{2}$ inches (6·35 cm.) in length. Immediately above the lock is a deep groove made to receive the free end of the block-lock. The right blade is slightly wider in its shank at this point, in order to check the bolt, and a hole in its lock portion receives the pin in the left limb. When the block-lock is fixed in the groove the lock is complete, whilst when it is rotated downwards the blades can be detached. The handles are flattened laterally, not rounded, and perfectly smooth, and their ends are rectangular. The blades bear a strong pelvic curve. The lowermost limits of the fenestræ show evidence of a brazing, probably for traction purposes, a feature detected by Mr. Barry Hopkins of Messrs. Arnold and Son, who has examined this instrument.[1] It is interesting in relation to Saxtorph's and Osiander's practices presently to be noted. The maker's name " Gribel " is cut into the left blade.

The weight of this forceps is 2 lb. (908 gram.); its length 18 ins. (45·7 cm.), the length of the blades 9 in. (22·8 cm.), their breadth $1\frac{3}{4}$ in. (4·4 cm.). The greatest breadth across the blades is $2\frac{5}{8}$ in. (6·6 cm.), and the distance between their tips when closed $\frac{5}{8}$ in. (1·7 cm.). The length of the fenestræ is $6\frac{3}{4}$ in. (17·1 cm.) and their breadth $\frac{3}{4}$ in. or nearly 2 cm.

1. It is on the authority of Mr. Hopkins that I have made use of what he has explained to me as the correct terms for the mechanical contrivances in the instruments described in this article, such as "block-lock" for the bolt, "thumb-piece" and "pin."

Mursinna's Original Description of His Forceps.

This forceps is described and figured by Mursinna himself in the first volume of his *Neues Journal für die Chirurgie, Arzneykunde und Geburtshülfe* (1803), p. 135, and Plate I. I must here express my deep obligation to Dr. Kuntze, Oberstabsarzt at the Kaiser-Wilhelms-Akademie für den Militärarzte Bildungswesen, Berlin, for the loan of the copy of Mursinna's *Neues Journal* from the library of that institution. No copy of this particular volume is preserved in the libraries of the College of Surgeons and the Royal Society of Medicine. I recently sent a sketch of the College forceps to my friend Professor August Martin, who kindly took the pains to identify the instrument as Mursinna's from the original forceps in the Museum of the Kaiser-Wilhelms-Akademie, and Professor Martin referred me to Dr. Kuntze for the inventor's original account of his forceps. A similar instrument, Professor Martin informs me, is preserved in another Museum in Berlin.

Mursinna's original description of his forceps is placed at the end of his Annual Report of Births in the *Charité*, Berlin, 1801-2. There were 260 labours and the forceps was applied in five only. Mursinna declares (*loc. cit.*, p. 128) that he never made use of the forceps save when the patient's condition was so grave that no other measure would ensure speedy delivery. Thus, as we shall see, though Mursinna took his lock from Osiander, he differed totally from that great obstetrician in his sparing use of the forceps. In 2 out of the 5 forceps' cases the patients were multiparæ with the abdomen highly pendulous; in 2 labour was delayed in the second stage, owing to the size of the fœtal head; and in the fifth labour was prolonged on account of uterine inertia. All the 5 children and 4 of the mothers were saved, in the fifth case the mother died in the fifth week, apparently from puerperal fever. Mursinna concludes his report with a short note describing the instrument which is the subject of this memoir. He speaks of it as "my improved forceps,[1] which he had used in all the five instrumental cases in the *Charité* series and also employed in private. He was of opinion that, as it had proved satisfactory in his hands, a note about it might be of interest to obstetricians. His forceps, he reminds us, is largely modelled after Levret's instrument, but he made it longer and improved the blades and handle. It measures two inches longer than Levret's and is, therefore, he finds, easier to apply to the head at the brim, and to draw down the head when accurately fixed. The

1. Bei dieser Gelegenheit habe ich zugleich meine verbesserte Zange, die ich in der *Charité*, und ueberhaupt im Gebrauch habe, mit abzeichnen lassen" (*loc cit*, p. 135). It is not quite clear whether he meant "my improvement on forceps designed by others" or "my improvement on my own earlier design." This question will be discussed further on.

blades are fenestrated, but their inner surfaces are well rounded off, without prominent borders, and are made perfectly smooth so as to press evenly on the fœtal head. The handles are longer than Levret's and almost straight, so that they may be firmly and comfortably grasped without fear of dangerous compression of the fœtal head. Lastly Mursinna states clearly that the lock is adopted from Osiander's forceps, for he had found that that obstetrician's joint and block-lock were easier of adjustment and firmer, and on that account more fit for their purpose, than all the other locks of other forceps that he knew of.[1] Yet Mursinna, unlike Osiander, retained the fenestræ and used the forceps—his own instrument—very rarely.

Mursinna represents his forceps as of the natural size, which I find on measurement to be 17 inches (43·18 cm.), being one inch shorter than the College specimen. The blades, in one figure, are closed and the swing block-lock, fixed by a screw on the handle of the left or male blade, is represented with its incurved free end lying in a notch on the left blade above the lock. This is the same mechanism as in the College specimen. The male and female, or right blade, are also figured separately. The pin in the left blade is identical with that in the College specimen. On the other hand Mursinna figures the block-lock with a small thumb-piece to fix it in the groove in the blade. Most probably this contrivance was found to be superfluous and therefore was omitted in the College specimen. There is also a notch in each handle below the lock to allow of the passage of the block-lock over the handles, as is shown in the tracing which I have taken from Mursinna's plate, where it is represented as fixed into the notch in the left handle. These notches in the handles, also represented in Kilian's *Armamentarium Lucinæ Novum* (Pl. xxiv.) are omitted in the College sample, so it is clear that they ultimately proved superfluous. The inventor or his pupils probably found that the blades could be disarticulated and packed without them. The handles have rectangular ends as in the College forceps, but both ends could be unscrewed. The handles are rounded and seem rather more slender than in the College instrument. Kilian (*loc. cit.*) represents a second forceps marked "Mursinna," with very solid handles, flattened laterally, as in the College forceps, but the lock is a button-screw of the older French type, the instrument being a modified, lightened "Levret." Mursinna, in his account of his forceps here quoted, admits that it was largely modelled after Levret's instrument. The sample in the College is transitional. Its lock is of the Osiander type as in Mursinna's "improved" forceps,

1. "Das Schloss habe ich von der Osianderschen Zange entlehnt. Ich finde diese Zusammenfügung und den Ueberwurf bequemer und fester, folglich zum Gebrauch nützlicher, als alle die Schlösser derjenigen Zangen, die ich kenne. Ich hoffe, Herr Osiander wird mir meine Freiheit verzeihen."

its handles are solid and flattened laterally, as in Kilian's second forceps marked "Mursinna." I can find no notice of the second instrument in Mursinna's works, where as has been shown he states in full how he followed Levret but adopted Osiander's lock in his "improved" forceps. Hence we may infer that this block-lock forceps was an improvement on an earlier instrument of his own, little if at all modified from Levret's. On the other hand it is just possible he found that the Osiander-lock was inconvenient and reverted to Levret's type of forceps.

II. Mursinna: His Life and His Work.

Carl Ludwig Mursinna was a very remarkable man, although Ingerslev makes no mention of him in his *Geburtszange*, whilst all that is recorded about him in Siebold's *Geschichte der Geburtshülfe* is the unfortunate fact that he performed symphyseotomy once but with a fatal result. The child was dead and was extracted with the forceps, and the mother died on the same day. The operation was performed in November 1815, and the operator did not neglect to publish the case.

Mursinna in the course of his long life went through varied experiences in other fields, especially battle fields, although he gained deserved distinction as an obstetrician. He was an entirely self-made and self-taught man, an "Autodidact' 'as the Germans say. He was blessed with a highly robust constitution so that in his old age he served in the field as an army surgeon throughout the terrible Jena campaign in 1806, and was once more in the field in 1811, though he had served as a surgeon in the seven years' war. As late as 1815 he actively superintended the care of the wounded sent to Berlin in the Waterloo campaign, and as above related he likewise performed a symphyseotomy.

Mursinna began life[1] as a barber-surgeon in his native town of Stolp, Pomerania. After receiving instruction as an apprentice to a municipal medical officer in the port of Colberg, he set out for the field in 1760. Already Frederick the Great's reverses had been retrieved and Mursinna returned to civil practice with the victorious army of his country in 1763, evidently girt with professional laurels of his own. By 1775 he was medical officer to the *Charité*, Berlin, where he practised obstetrics as well as medicine and civil surgery. The war of the Bavarian Succession called him once more to the field in 1778. In 1780 a grave epidemic of dysentery occurred in Westphalia; Mursinna had become by this date a man of some importance,

1. Gurlt and Hirsch, *Biographisches Lexicon der hervorragenden Aerzte aller Zeiten und Völker*, give the date of his birth as December 17, 1744, but make him out as 89 years old at his death in May 1823.

as the authorities sent him down to that province and he published a report according to their request.

Returning to Berlin, he took not only to hospital and private practice but also to active literary work, continued through the days of the French Revolution, and the ruin, deliverance and triumph of his own country. By 1782 some medical and surgical observations appeared,[1] but he must have had already by that date much experience in obstetrics, for in 1784 his *Abhandlungen von der Krankheiten der Schwangeren, der Gebärenden, Wöchnerinnen und Saüglinge* was published and went through a second edition. It was a work of considerable merit and is to be found in some medical libraries in London. In 1787 Mursinna was made Professor of Surgery and General Surgeon. While he was doing obstetrical work and amputations, he likewise undertook ophthalmic surgery, performing in forty years 908 cataract operations with, it is recorded, only 41 complete failures. In 1795 he once more went to the field of battle, the Prussian army being engaged in a campaign in Poland.

From Poland, Mursinna returned to Berlin. He took to the pen again, and was now recognized as a great operator and obstetrician. Hitherto, at least in the works above mentioned, he wrote nothing about the use of the forceps. But in 1801 he started his *Journal*, and in 1803 published in its pages the account of his own forceps which is reproduced in this article. The *Journal*, some volumes only of which are preserved in the library of the College of Surgeons, ran from 1801 to 1815, but was suspended during the war in 1806-7. Mursinna held the appointment of surgeon to the Pepinière-Schule für Militärarzte, now the Kaiser-Wilhelm-Akademie für den Militärarzte Bildungswesen, where a sample of his forceps is still preserved. Mursinna also contributed to several other serials, especially to Stark's *Archiv*. He was very busy in the field during the Jena campaign. His jubilee of fifty years' service was kept in 1811, and his pupils greeted him with enthusiasm on that occasion, for he was a good teacher and an eloquent speaker, his annual addresses at the Pepinière in 1804, 1809 and 1811 exciting great interest. Mursinna, by 1813, was too old to go to the field, but was active in Berlin. He did not resign his office of Surgeon-Director to the *Charité* until 1818 and he lectured until 1820. Mursinna died three years later, at the age of 89. His colleagues apparently, and his pupils more decidedly, admitted that he always taught commonsense, and condemned quack doctrines and over-confidence in any particular teacher.

1. *Medicinisch-chirurgische Beobachtungen.* A copy is preserved in the library of the College of Surgeons and a copy of the *Neue Beobachtungen* (1796) is to be found in the library of the Royal Society of Medicine, with "Royal College of Surgeons" stamped on its title-page.

We will now turn to a much better remembered obstetrician, Osiander, because as we have seen, Mursinna avowedly adopted his lock, yet though experienced in midwifery and the inventor of a forceps, he rather dissuaded than encouraged his followers in its use, whilst Osiander did all he could to generalize instrumental delivery as beneficial to the child as well as the mother.

III. Osiander.

This distinguished obstetrician appears to have been the first advocate of the forceps as an instrument which should be used and not unsparingly by every practitioner. His principal teacher, George Stein, was an out and out supporter of the forceps, insisting on the superior merits of Levret's instrument, and rejecting all modifications, "deformed bastards" as he called them. As Stein's instruction was delivered about 1781, there were, as Mulder testifies, a considerable number of *missgestaltete Bastarde* already in use. Stein held that compression played the chief share in the action of the forceps, and affixed to the handles of Levret's forceps a scale or "labimeter" to ascertain the size of the fœtal head and the degree of compression exercised by the operator. But neither Mulder nor Kilian figure Stein's labimeter. About forty years ago Kristeller of Berlin devised a forceps with a scale, to measure the degree of compression, on its handle, and a sample is preserved in the Obstetrical Society's collection at the College of Surgeons.

The pupil became a great advocate of the forceps, but it would be interesting to know what Stein, who lived till 1803, thought of Osiander's remarkable modifications. Friedrich Benjamin Osiander was born in Zell unter Aichelberg, in Würtemberg, in 1759. He took his degree at Tübingen University in 1779, and immediately entered into private practice at Kircheim unter Teck. He became known as a very industrious young practitioner and gained a large midwifery practice; before he had reached the age of thirty he grew convinced that it was the duty of the doctor to shorten delivery as much as possible when the natural powers failed and for that aim turning or the forceps was the best agent. From that conviction he never wavered, though he gave up his practice and studied under professors of obstetrics. The first was Siegwart of Tübingen (1778), then Osiander studied in Strassburg a year later. But in 1781 he worked under Stein in Cassel. Stein placed high trust in his pupil, leaving him in charge of his private home and much of his private obstetric practice. Osiander declared that Stein only confirmed his own views and experience by teaching him in a scientific and systematic manner the advantages of the forceps, skilfully applied. Then Osiander returned to Kircheim, where he managed to resume his large private obstetric practice and demonstrated and defended

the use of the forceps before sceptical and hostile fellow citizens. He also studied the history of obstetrics from the earliest times. By 1792 he not only had used the forceps freely, in 39 out of 168 cases in fact, but he had performed his first perforation, which was to be his last. He abhorred that operation and taught that the forceps should be used up to the limit where Cæsarean section was absolutely demanded—a conjugate of $2\frac{3}{4}$ inches or 7 centimetres.[1] Known by 1792 as a most experienced obstetrician, he accepted the professorship of obstetrics at Göttingen. As director of the maternity institute attached to the University he worked with the most exemplary diligence for nearly thirty years. His teaching was strenuously opposed by Lukas Johann Boër (1751—1835) of Vienna. The latter no doubt was right in objecting to much of Osiander's teaching, but it must be remembered that Boër in 1790 applied the forceps in delivering an Austrian Archduchess and lost his august patient within a few hours, although he saved the child, a princess. This, and domestic troubles, preyed on Boër's mind. The literary war was continued after Osiander's death in 1822 by his son, John Frederick Osiander, D'Outrepont, Boër's pupil, defending his teacher. Ingerslev ably throws light not only on the teaching but also on the practice of Osiander. Forty pulls of the forceps marked the limit where if extraction failed perforation was allowable, but Osiander himself boasted that he had pulled 175 times in some cases and 100 times in a good number, yet without the slightest harm to mother or fœtus. Holding fast to his determination, he never did a craniotomy in the Göttingen maternity. Between 1792 and 1822, 2,540 labours were treated in that institution. Out of these 1016 were forceps cases and 111 were delivered by turning. Forty per cent. of forceps cases naturally called for the criticism of Boër and even less hostile obstetricians. In his first year, 1792, Osiander used the forceps in 8 out of 16 cases and performed version twice. In 1801 we find a "record" of 59 forceps cases out of 93 deliveries, with 8 versions and 1 Cæsarean section! 13 over half the total looks like "meddlesome midwifery." At that same date, as has been shown, Mursinna applied his forceps in 5 out of 260 labours, or under 2 per cent. In his later years, as Gurlt and Hirsch point out, Osiander used the forceps much less frequently, and it is significant that his son, also professor of obstetrics, employed it even less, though he strongly defended his sire against the assaults of Boër and his pupils.

Osiander was the author of several text-books, a *Handbuch der Entbindungskunst*, a *Lehrbuch der Hebammenskunst*, and a *Lehrbuch der Entbindungskunst*. The third was a good, though rather partial history of obstetrics, the model for many which succeeded it.

1. He also objected to the induction of premature labour and to symphyseotomy.

Another work was a singular little illustrated book *Epigrammata in Diversas res Musei sui Anatomico et Pinacothecæ cum figuris aere incisis et expressis*, a copy of which is preserved in the Library of the College of Surgeons. Osiander's warfare with Boër in medical journals is accomplished—and long forgotten.

Siebold, who was personally acquainted with him, declared that Osiander won laurels that could never fade and that no foe could tear from his brow.[1] He paid the greatest attention to the forceps, using at first a lengthened Levret (the shortest of Levret's three forceps measured 15½ inches and the longest 18 inches!), and then inventing one, very long and strong, which could be used by him even when the head lay very high. Gurlt and Hirsch, in a good summary of Osiander's life, conclude that in accordance with his teachings and practice, Osiander's merit lay exclusively in the direction of strict operative technique, correct application of the forceps and dexterity in the performance of version. He invented a large number of instruments, pelvimeters, dilators, metrotomes, hysterotomes and vectes, all of which soon fell into disuse, like his method of performing Cæsarean section and like—most interesting of all—his obstetric forceps.

Osiander's forceps was indeed a remarkable weapon, bigger in fact than not a few patterns of the cephalotribe. Whilst his master Stein denounced all modifications of Levret's instrument, Osiander designed a forceps different from all previously constructed. The blades were not fenestrated, for he considered that solid blades allowed of the best possible hold of the fœtal head, opposing to it a wide uniform surface. Each handle bore two finger rests, one was the ordinary projecting terminal portion, forming almost a right angle, familiar in foreign forceps, the second was a flange not immediately below the lock as in Aitken's, Busch's and, much later, Simpson's forceps, but halfway between the pin end and the lock. The earliest pattern of Osiander's forceps was provided with a rack and lock at the free end, such as Gayton added to his straight forceps in 1863, but this was omitted as unnecessary, we may presume, in the later pattern which we reproduce from Kilian (*loc. cit.*, p. cxxiii.). Ingerslev reminds us that Osiander likened the forceps to two artificial hands, and therefore, contrary to his predecessors and successors, he called the blade corresponding to the left hand the left blade and *vice versa*. Ingerslev, who dwells at full length on Tarnier's great invention, considers that Osiander was the first obstetrician who recognized that something was wanting for insuring the right direction during traction, the problem which the great French obstetrician ultimately solved in 1877. More recently, Dr. J. Munro Kerr refers

1. *Versuch einer Geschichte der Geburtshülfe*, 1845, vol. ii, pp. 598, 602.

to Osiander's practice in respect to traction.[1] He notes how Saxtorph, the Dane, suggested the passing of bands through the fenestræ of the blades with the object of obtaining traction in the axis of the pelvis, and Stein, his pupil, seems to have made use of that contrivance. The practice of pulling on the handles with the right hand and pulling on the shanks with the left, generally termed "Pajot's manœuvre," was described by Osiander, Stein's pupil, though it was really first suggested by Saxtorph.

Lastly, but most to the point in the present article, Osiander set up a lock of his own. He rejected the button screw and the pivot and mortise of the French, and objected to the English lock. The blades were simply opposed, a pin in the left lock fitted into a hole in the right, and a block-lock secured them. This lock is that adopted by Mursinna and figured and explained above. Mursinna, as has been shown, approved highly of it. In Kilian's drawings of Osiander's forceps the block-lock bears a small thumb-piece to fix it in the groove in the blade as in the forceps figured by Mursinna, that contrivance being absent in the Mursinna's forceps in the Museum of the College of Surgeons.

In respect to the actual year in which Osiander's forceps was invented or made public, that obstetrician, according to the "Appendix" added by J. W. Schlegel to his German translation of Mulder's *Historia Forcipum et Vectium*, which was published in 1798, had not up to that date spoken or written of any special forceps of his own design. He had already practised a method of coating the forceps, and presumably other obstetric instruments, with india-rubber. Comparing the date of Schlegel's statement with Mursinna's reference to Osiander's instrument in 1803, it would appear that Osiander's special forceps must have been devised, or at least made known by the inventor in the course of the five intervening years.

Boër, the great opponent of Osiander, objected to the application of the forceps when the head was not arrested at the inlet. That instrument was indicated only when the head lay high. He designed a light and short forceps, fenestrated and with a very slight pelvic curve. The tips of the blades did not touch when the handles were closed. Otherwise, as Ingerslev remarks, Boër's forceps recalled Smellie's.

We may now return to Mursinna. His forceps was a big, heavy instrument, and it bore a peculiar lock, resembling Osiander's in these respects. But Mursinna retained, like Boër, the fenestræ in the blades and in practice refrained still more than the great Viennese obstetrician from the application of even his own instrument.

1. *Operative Midwifery*, second edition, p. 334.

IV. Weissbrod's Forceps.

Only one other forceps, besides Mursinna's, bore Osiander's lock, as far as Kilian can enlighten us. It was designed by Weissbrod and is figured in the *Armamentarium Novum*, Pl. xxvii. Kilian, unlike Mulder, gives no references, but as far as can be made out from Siebold's *Geschichte der Geburtshülfe*, Weissbrod, Director of the Lying-in Hospital in Munich about 80 years ago wrote an *Aufsatz über die zweckmässigste Construction der Gerburtszangen*, published in Textor's *Neue Chirurgie*, vol. 2, in 1825, and presumably the drawing reproduced by Kilian was published with the inventor's paper. The blades are of Osiander's type, non-fenestrated, the block-lock forms a replica of Osiander's second pattern, but the handles are coated externally with wood, and everted at the free end, a kind of compromise between the bulging palm rest, so familiar a feature in English forceps and the curved or rectangular hooks of French instruments, as well as of Osiander's and Mursinna's. There is no flange or finger-rest and hardly any shoulder to the handle.

In conclusion, time and the experience of later obstetricians has not favoured Osiander's and Mursinna's lock, for it rapidly fell into disuse. Still it seemed to be an ingenious piece of mechanism which deserved rescue from oblivion.

I must express my thanks to Professor Keith and the President and Council of the Royal College of Surgeons for allowing photographs of the forceps to be taken for illustrating this article.

APPENDIX.

The Origin of the Osiander Lock.

Dr. Edward Martin, in a pamphlet entitled *Die Gebäranstalt und die geburtshülflichen Kliniken der Universität Jena*, figures (p. 74 and Pl. ii, fig. 1) some old forceps preserved in the museum attached to the Jena Lying-in Hospital, formerly in the possession of E. Martin's predecessor, J. G. Stark. One instrument is described by Martin as without doubt one of the oldest type of forceps, but its inventor has been forgotten. It is represented as a typical heavy solid steel French forceps, with unfenestrated blades bearing a wide cephalic curve, and the handles are turned up at their extremities. The lock at first sight appears almost identical with Osiander's. There is a pin which fits into a hole in the opposite limb. But the pin has a broad, flattened head and the lock is not closed by the bolt-lock revolving on a screw. There is a separate piece of metal, a sliding bar which bears a hole prolonged into a slot. The head of the pin was passed through the hole and the bar slid upwards, so as to make fast the lock. Osiander knew Stark, and contributed to his Journal. The contrivance here described may have suggested the

Fig. 1.

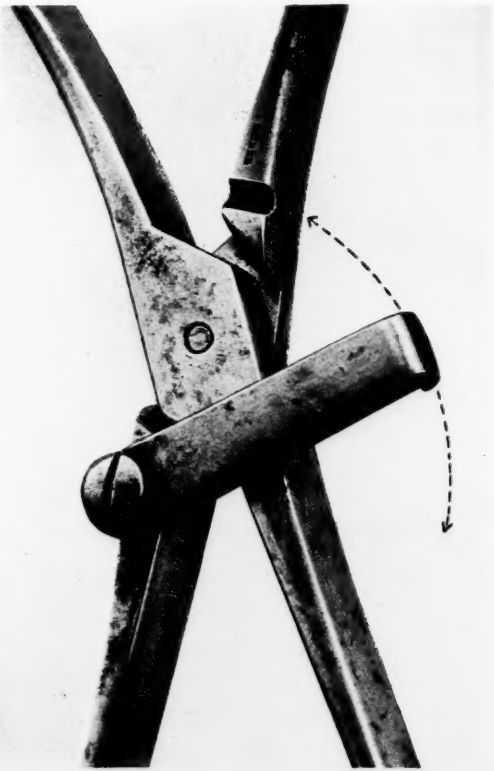

Fig. 2.

Fig. 3.

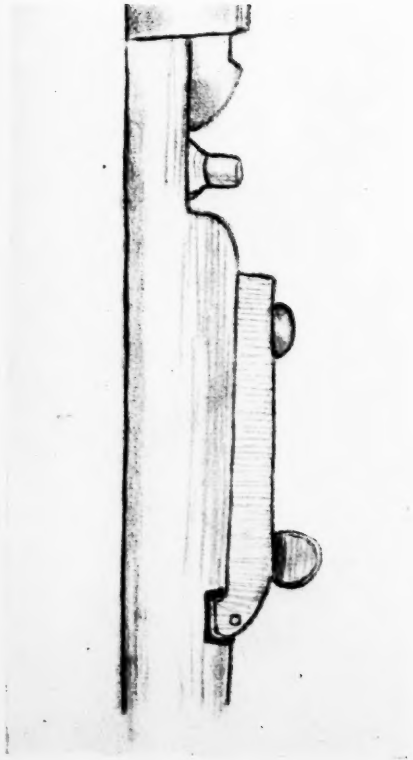

Fig. 4.

Fig. 5.

Fig. 6.

Osiander lock, which in that case would be a simplification, as the bolt-lock attached to the forceps by a screw did not require to be fixed on and taken off whenever the forceps was employed. Mulder does not figure any forceps with the sliding bar, or with Osiander's bolt-lock in his *Historia Forcipum*.

Illustrations.

Fig. 1. Mursinna's forceps. Photographed from a sample in the loan collection of obstetrical instruments in the Museum of the College of Surgeons. The lock is nearly closed by the bolt- or block-lock.

Fig. 2. Lock of the same instrument. The block-lock is rotated downwards, exposing the notch in the left blade designed to receive its incurved end, and the pin in the left blade fitting into the hole in the right or female blade.

Fig. 3. Lock as figured in Mursinna's plate illustrating his original account of his forceps, *Neues Journal für die Chirurgie Arzneykunde und Geburtshülfe*, 1803, p. 135, and Pl. i. The block-lock bears a small thumb-piece to fix it in the groove in the left blade and both handles are grooved, to allow of the rotation downwards of the block-lock.

Fig. 4. Portion of left limb as figured in Mursinna's plate, showing the pin in the lock which is identical with the pin in the College sample, and the block rotated downwards with its incurved free end lying in a groove in the handle, fixed by the thumb-piece.

Fig. 5. Osiander's forceps, second pattern. Drawn by A. Reid, after Kilian, *Armamentarium Lucinæ Novum*, Pl. xxiii. Showing block-lock and groove in left blade, the mechanism adopted by Mursinna.

Fig. 6. Weissbrod's forceps. Drawn by A. Reid after Kilian, *loc. cit*, Pl. xxvii. Showing block-lock and groove in left blade.

Some Sequelæ of Labour.*

By Bethel Solomons, M.D. (Univ. Dub.), M.R.C.P.I.,

Ex-Assistant Master, Rotunda Hospital.

I feel that my first duty is to apologise for bringing under your notice a subject that perhaps may be considered ancient history, but my excuse is that, as far as I can trace, there have been no post labour statistics collected during recent years. It is a well-known fact that there would be very little gynæcology except for midwifery. The number of patients who attended the Rotunda Hospital Dispensaries because of complaints consequent on their confinements determined me to endeavour to gather together some statistics regarding those patients who were delivered in the hospital. In reviewing these figures one must bear in mind that most of these are women who had been delivered in a well-appointed hospital, under the best conditions, whereas a great number of those who were delivered outside the hospital run a much greater risk with less skilled attendants and less satisfactory surroundings.

Having obtained the sanction of the Master, cards were printed and were given to all primiparæ as they left the hospital on the eighth day of the puerperium. The instructions on these cards were to come for examination on that day week. If all those to whom cards were presented had appeared these statistics would have been greater; but personally I am satisfied, for warning had been given to me that none would trouble to come. I shall now submit to you the results of examining 543 primiparæ sixteen days after labour. In 543 cases there were:—

Normal	219
Cervix lacerated only	219
Sub-involution	27
Cervix lacerated, accompanied by retroversion	25
Retroversion only	14
Cervix lacerated: non-union of perineum	12
Cervix lacerated: non-union of perineum, retroversion	8
Non-union of perineum only	7
Parametritis	4
Non-union of perineum, retroversion	3
Cystitis	2
Prolapse	2
Pyosalpinx	1
Total	543

* Read in the Section of Obstetrics, Royal Academy of Medicine in Ireland, May 23, 1913.

That is—

Normal	219	or 40·33	per cent.
Lacerated cervix	264	or 48·62	,,
Retroversion	50	or 9·21	,,
Non-union of perineum	30	or 5·52	,,
Sub-involution	27	or 4·97	,,
Parametritis	4	or ·07	,,
Cystitis	2	or ·035	,,
Prolapse	2	or ·035	,,
Pyosalpinx	1	or 0·18	,,

Normal Cases. It seems extraordinary to find that only slightly more than 40 per cent. of the cases examined were perfectly normal. But when it is seen later that in the table tears of the cervix from a third of an inch upwards are included this apparent phenomenon is explained.

Laceration of the Cervix. Some gynæcologists examine a patient, find a lacerated cervix, and tell her that instruments were applied in the confinement. It will be seen by the vast number of these cases—viz., 48·62 per cent.—that a tear of the cervix does not depend on the application of forceps. In these 264 cases the injury varied from a third of an inch on one or other side to large bilateral tears, the size being absolutely independent of instruments. Colyer[1] and others have stated that the extent of the tear depended on the time before labour that the membranes ruptured—*i.e.*, that the earlier the membranes ruptured the greater was the tear. In this investigation I have no definite statistical evidence about the point, but on questioning some of those who had extensive tears I was informed that the "waters" had come away long before the birth of the infant. On finding such a large number of these lacerations one must needs enquire whether their occurrence can be avoided: also what steps should be taken when they are discovered. It seems impossible to avoid the former in natural deliveries. The latter opens up a large field for discussion. It is well known that the less intravaginal interference after the placenta has been delivered the better is the prognosis. If one could be sure that a cervical laceration was present one might advise vaginal examination, with suture afterwards. As this diagnosis without examination is impossible, the question arises as to whether examination should be indulged in or not. Also, if a laceration is found, whether one should immediately suture or operate secondarily. Dickinson[2] finds that tears of the cervix are so common that he always examines and sutures at the same time as the perineum, or else three to ten days later. He does not mention if he does denudation in the latter instance. In the discussion on this paper two other speakers concurred, but Cragin[3] "hit the nail on the head" when he said that although he

approved of stitching tears, yet he feared preaching this dictum to students owing to the skill and absolute aseptic technique required. Baldy[4] does not suture tears if discovered, for he considers they heal spontaneously; neither does he believe that cancer starts in a tear, as stated in many monographs, and noted by Ashton[5] in his *Practice of Gynæcology*. Such a great authority as Whitridge Williams[6] advises against suturing unless there is hæmorrhage. Davis,[7] from a study of 53 cases, concludes that lacerations of half-an-inch should be primarily closed, but points out the necessity for capability and aseptic technique. He found good union in 45, and considers a tear smaller than half-an-inch heals spontaneously. In this long paper he describes his technique, in which there is nothing out of the common. Coles[8] quotes other authorities to show that tears occur in 5 per cent. to 15 per cent. of multiparæ, and 25 per cent. to 50 per cent. of primiparæ. He says that this is too low a computation, and that 25 per cent. and 75 per cent. respectively have tears. From his investigations he concludes that involution should not be awaited, but immediate suture should be practised. Later he contradicts himself when he suggests that if œdema is present another operation is afterwards necessary. He finds that the better class of patient expects to be lacerated and demands to be sutured. Comment on such an observation is needless! Heywood Smith[9] and Macnaughton Jones[10] favour immediate suture, the former drawing attention to the danger in unstitched cases of endocervicitis, fatal sepsis in large lacerations, abortions, sterility, and cancer. Wm. E. Ground[11] finds immediate suture useless, and advises a secondary operation two months later. With such varied opinions of distinguished obstetricians one must of necessity map out one's own course of treatment. (*a*) Should a vaginal examination be made immediately the placenta is delivered? The answer in normal cases appears to be in the negative; in fact, such teaching to inexperienced students would be nothing short of criminal. In traumatic hæmorrhage arising from the cervix the laceration should be sutured. In those cases where an intrauterine douche is given the cervix should be examined, and if necessary sutured. (*b*) Should all women be examined two months after confinement? Certainly. (*c*) Should they be informed that the cervix is torn and requires repair? If they are similar to those patients of Coles[12] they will be pleased. But if in this age of strenuous competition such news is heard by the ordinary woman, who is feeling recovered after her confinement, there will be a great tendency for her to employ a different practitioner in the future. The best way out of a difficult position is to make a routine examination of patients, to tell them the dangers of cervical laceration: if such be found, to advise operation as a safeguard rather than as a necessity. One might argue against operation that there is a danger of a repetition of the

tear in the following confinement. An alternative suggestion is that there should be a routine examination of all women at the end of their child-bearing period, when all lacerated cervices could be repaired.

Backward Displacement of the Uterus. This is of such common occurrence in the gynæcologist's practice that I was much surprised to find that only in 50 of the cases—*i.e.*, 9·21 per cent.—was it present. Polak[13] found a nearly similar average—viz., 43 in 500—when he examined ten days after confinement. An examination of the same cases four to six weeks later revealed 231 in this series, of which 203 were mobile. The usual cause of post partum retroversion is supposed to be the dorsal decubitus, and it is suggested that frequent change of position will overcome this. It seems doubtful whether the modern idea of early rising will militate for or against. Polak[14] recommends proper postural treatment—*i.e.*, that the patient should assume the right and left lateral prone positions, that she should sit up early and leave bed to evacuate her bowels. In the discussion on this paper, Gallant[15] advised the use of a pessary post partum. Zeigenspeck[16] has come to the conclusion that bladder over-distension, perimetritis, and parametritis are more common causes than have been supposed—the constant position on the back also predisposing. Bouffe de Saint Blaise[17] found only four retroversions in 495 women examined.

It seems from the above data that retroversion can be avoided. Proper postural treatment is the chief aim. Every patient should be examined once a month for at least four months after the confinement, when, if displacements are found, they can be easily corrected. Precautions should be taken against bladder over-distension.

Non-union of the Perineum. There were 30 of these in the cases examined. This number seems large, but the difficulty in persuading patients of the humbler class to remain reasonably quiet, or of persuading them to have a secondary operation when the first is unsuccessful, is enormous. This is not a fit time to introduce the question of the best operation, but the question of suture material is relative. In my first year as Assistant Master in the Rotunda Hospital, with the Master's permission, I experimentalized on about 50 primiparæ in order to find the results from the use of catgut. Although union was fair in these cases they were not nearly as gratifying as those obtained with silk-worm gut. A great disadvantage in catgut for the skin is the tendency to avoid final examination of the wound, so that one may know if the work is satisfactory. Besides, it is a fact well known that catgut is an absorbent material. It is extraordinary how many doctors and nurses will proudly say that they had never had a patient with a lacerated perineum in their practice. How often have they separated the vulvar lips to search for those deep internal tears which are more serious than all the

others? Polak[18] suggests a colpeurynteur in the vagina before the baby is born to obviate the risk of tears. The main objection to this is the extra manipulation. A secondary operation within a week is very successful in clean cases.

Sub-involution. The uterus was just above the pubes in 27 cases, while discharge of a varied colour was present. Bouffe de Saint Blaise[19] found in 260 women that the uterus was palpable 4–9 cm. above the pubes when examined on the ninth or tenth day. These cases of sub-involution soon yield to treatment, but one cannot urge too strongly the necessity for manual examination of the inside of the uterus in those women who have a large uterus and a fœtid discharge in order that chorion-epithelioma may not be overlooked.

Miscellaneous.—There were four cases of parametritis, two of cystitis, two of prolapse, and one of pyosalpinx, and these are of little importance. The cases of prolapse were only slight, and are no criterion, for no one would expect prolapse to become serious at a much later date than sixteen days after confinement. Polak and Ziegenspeck[20] both consider cystitis to be due to insufficient emptying of the bladder. Retention of urine is a very unpleasant and awkward complication which is usually found in association with lacerations of the perineum. It is often a nervous condition, and sometimes catheterization has to be practised for many weeks. Ammonia to the nose often brings instant relief. Rupture of the symphysis pubis is luckily very rare in this country, although Kriwski[21] collected 134 cases, of which two occurred in his own practice. Scheurer[22] also reports a case. I remember assisting at a subcutaneous pubiotomy where sharp hœmorrhage ensued when the needle was passed up, which was evidently due to its passage over a roughness in the bone where forcible delivery had been accomplished in the previous labour. A partial separation at some part of the pubic bone must often be an accompaniment of a forcible delivery.

Embolism and Early Rising. One of the most discussed questions of the present day is the date when a patient should rise after labour. There have been many papers written on the subject, and a conclusion seems as far distant as ever. In the Rotunda Hospital Report for 1913[23] Dr. Jellett writes:—"Provided that their confinement was normal and that there had been no perineal laceration, they were allowed and encouraged to sit up in bed after the first twelve hours, and to get out of bed to pass water if they wished to do so. After forty-eight hours, if they continued well, they were made to leave their bed at least twice in the twenty-four hours to pass water. After seventy-two hours they were allowed to take a few steps or to sit for a few minutes on a chair or on their bed, the time they remained up being gradually increased so long as their state of health continued good. During the past year I have made no change in this plan, and I have found it most satisfactory," etc.

Various foreign authorities have very different rules for their patients. Polak[24] allows his patients to get out of bed from the commencement to evacuate their bowels. Rosenfeld,[25] Simon,[26] v. Alvensleben,[27] Martin,[28] Kronig,[29] all believe in early rising. They have found no complications, their patients feel better, and Simon noted a decrease in morbidity. Schucking[30] advises rest in bed with gymnastic exercises. Fromme[31] allows his patients after normal labour to rise for an hour on the second day. One patient died in three days, and the autopsy revealed thrombosis of the left ovarian, renal, and of all the left parametric veins with embolism of the pulmonary artery. He considers that early rising is no prevention for thrombosis, and urges against it. In a question of this kind one must search surgical records, and Burnham,[32] in an excellent paper on post-operative thrombo-phlebitis, notes that Klein claims 50 per cent. decrease in thrombosis since adopting early rising; but Burnham's own experience puts him against this form of treatment. Thrombo-phlebitis is preceded by a slowing of the blood-stream and by local and general disease of the vessel walls. Rest in bed, ichthyol locally, lemon-juice internally, as recommended by Almroth Wright, elevation of the limbs, with bandaging, are the best preventives for thrombosis with embolism as its possible sequel. Blanchard Wilson,[33] from his studies at the Mayo Clinic, finds that embolism is more common in women than in men, and is comparatively frequent after abdominal hysterectomies, whereas there was no fatal case in 449 vaginal hysterectomies. He suggests *very* early rising, free movement on the part of the patient, which must be done early enough to *prevent* the formation of extensive thrombi. He suggests drugs, such as the calcium salts, to increase the coagulability of the blood, and preaches the necessity for measures to cause a reduction of bacteræmia. It is impossible to make rules about a question of this kind, for although they *may* be followed by the educated patient, the woman in humble life is unable to follow them. The ideal treatment in a normal case seems to be free movements and gymnastic exercises from the beginning, rest in bed until the fourteenth day, when the uterus will certainly have the protection of the pelvis, and displacements will be less common. This rest in bed will favour involution of the contents of the pelvis, which early walking would seem to prevent.

Conclusions.

1. Cervical laceration after normal labour is very common. If it occurs, and hæmorrhage is present, immediate suture should be practised: if no hœmorrhage, the tear should be sewn in two months, or else a routine examination should be made of all women at the end of their child-bearing period, when all lacerated cervices should be repaired.

2. Post partum retroversion of the uterus, when not fixed back by inflammation, is caused by the dorsal decubitus. The best treatment, therefore, is postural. Every patient should be examined once a month for at least four months after confinement.

3. When non-union of a stitched perineum occurs, a second perinæorrhaphy should be done immediately in aseptic cases.

4. No definite dictum can be laid down about early rising until some more statistics are published. In normal clean cases postural treatment and gymnastic exercises are advised.

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SELECT CLINICAL REPORTS.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class.)

An Operation for Prolapse Complicated by Hypertrophy of the Cervix.

By W. E. Fothergill, M.A., B.Sc., M.D.

When prolapse is complicated by hypertrophy of the cervix it is usual to begin the operation for its relief by removing a proper portion of the cervix and suturing the wound thus made in the customary way. Then a fresh incision is made and an anterior colporrhaphy is performed. But if the anterior wall is excised at all freely, the two incisions approach one another closely and a very poor and narrow bridge of sound tissue is left between them. Further, the amputation of the cervix tends to shorten the anterior vaginal wall, and thus, when the colporrhaphy has been completed,

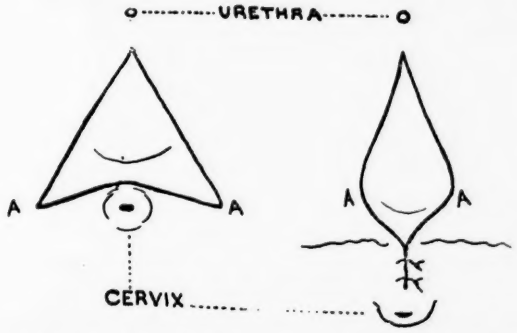


Fig. 1. Colporraphy incision for prolapse without hypertrophy of cervix.

the cervix still points downwards and forwards and the uterus is left in a position of retroversion which is very favourable to the recurrence of prolapse. For some time past I have been using a single incision for both the amputation of the cervix and the excision of the redundant vaginal wall; and have found the results more satisfactory than those obtained by doing the operations separately. In order to make clear this modification of technique it is necessary to explain

how I treat ordinary cases of prolapse in which the cervix is not hypertrophied. The anterior colporrhaphy is done so that the wound is broad above and narrows to a point near the urethral orifice. The piece of vaginal wall removed is roughly an equilateral triangle with its base touching the cervix and its apex near the urethral orifice. The easiest way of making the incision is to pull down the cervix with a vulsellum fixed in its anterior lip and then to pick up with forceps two points about three inches apart, one directly to the right the other directly to the left of the *os uteri*. The vaginal wall is put on the stretch and is cut through between the tips of the instruments. It is then easily separated from the bladder and a triangular portion is cut away.

This extension of the wound into the lateral vaginal fornices exposes the connective tissue on either side of the cervix—the *parametria*. When the wound is closed from side to side the tissues which previously lay at the sides of the cervix are united in the middle line in front of the cervix. This manœuvre pushes the cervix back towards the hollow of the sacrum and thus tilts the fundus forward into a position of anteversion. The suturing of the wound begins at the cervical end of the wound, for as the stitches are tied one after another, this end of the incision with the cervix behind it disappears from sight and, if the incision is broad enough, is not seen again. The closing of the lower part of the wound corrects the cystocele, and thus anterior colporrhaphy done as above described remedies both the retroversion and the cystocele whose combination is characteristic of classical prolapse. The catgut used for the sutures is hardened with formalin or chromic acid sufficiently to last for about three weeks. Interrupted sutures are used. For if a continuous suture or even a series of mattress sutures is used the incision is shortened, and thus the cervix is pulled downwards and forwards. This reproduces the retroverted position of the uterus and favours recurrence of the prolapse.

To complete the operation, the vaginal outlet is narrowed by repairing the perineum. The upper part of the posterior vaginal wall is not touched.

The modification of this operation which I have been using in cases of prolapse complicated by considerable elongation of the cervix is as follows. The cervical canal is dilated and a circular incision is made round the cervix with a knife. The vaginal wall, the bladder and the parametria are then snipped free with scissors and pushed back from the cervix. The vaginal wall is next incised for an inch or so on either side of the circular incision already made, the new cuts extending directly to the right and to the left. The anterior vaginal wall is now separated from the parametric tissues and from the bladder, and a triangular portion with its apex near the urethral aperture is cut away. The cervix is next amputated,

enough being cut away to leave the uterus three inches long. The stump of the cervix is now stitched into the posterior part of the incision. The first suture brings together the central point of the posterior limb of the vaginal incision and the mucosa lining the posterior wall of the cervical canal. The second and third stitches unite vaginal wall and cervical mucosa right and left of the first. And so on, until the sides of the vaginal incision come together in front of the stump of the cervix. By this time the newly constructed os is beginning to disappear upwards and backwards. The lateral edges of the vaginal wound with the subjacent connective tissue are brought together in the middle line from behind forwards. The line of suture disappears from view as the later sutures are tied. The perineum is finally repaired as before.

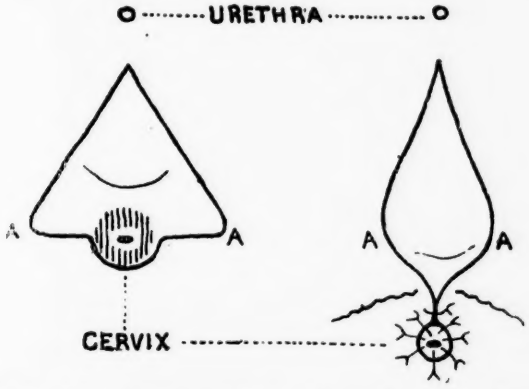


Fig. 2. Incision for amputation of cervix and colporraphy in prolapse with hypertrophy of cervix.

I find this method of operating convenient both when the elongation of the cervix is mainly supra-vaginal and also when the elongation mainly affects the vaginal portion.

In connection with this subject I should like to express complete scepticism as to the existence of the so-called tensile elongation of the cervix, which was supposed to be produced by the dragging upon the cervix of prolapsed vaginal walls. Such a thing occasionally occurs after the uterus has been fixed to the abdominal wall by a ventrofixation. But if the uterus is not fixed above how can it be lengthened by pulling on it below? The theory of elongation by stretching seems to be a relic of the times when the uterus was thought to be held up by the broad and round ligaments. Now that the cervix is well known to be the most firmly attached portion of the uterus, surely the theory of tensile elongation may be allowed to drop gently into oblivion.

Hæmorrhages into an Angiomatous Fibromyoma of the Uterus and Atheroma of the Uterine Arteries

By W. Fletcher Shaw, M.D.,

Assistant Lecturer in Obstetrics and Gynæcology, Manchester University; Hon. Assistant Surgeon, St. Mary's Hospital for Women, Manchester.

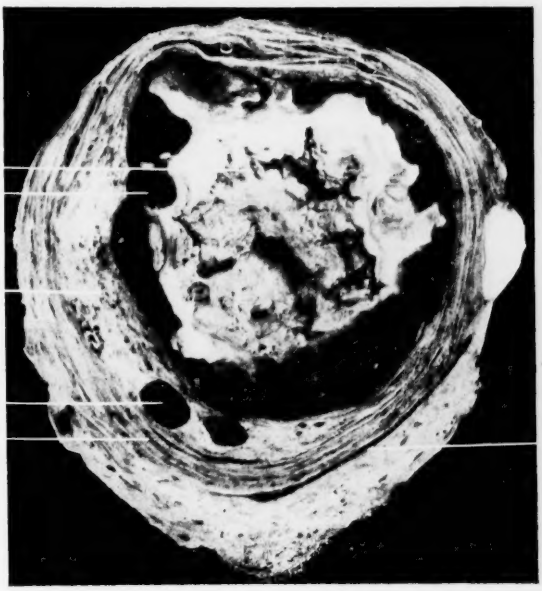
This specimen was removed, by Dr. Walls, from a patient 65 years of age, on account of severe abdominal pain and collapse.

The specimen consists of a uterus removed by supra-vaginal hysterectomy, enlarged to about the size of a sweed turnip, with a single insterstitial fibromyoma, about 4½ ins. in diameter. Both uterine arteries are hard and enlarged almost to the size of a normal femoral artery: sections through these show them to contain large patches of atheroma. This is only part of a general change in the arteries all over the body. The aorta was enormously enlarged and hard. On bisecting the specimen it is found to consist of a central core surrounded by three concentric rings, each about half-an-inch in thickness. The outer ring consists of uterine tissue, the next ring of apparently normal fibromyomatous tissue: internal to this is a bright red ring of fresh blood, inside of which is a kernel of white thrombus.

Sections show the fibromyomatous tissue to contain a very large number of thin-walled blood vessels. In this tissue there are also several collections of bright red blood, varying in size from a split pea to a haricot bean. These collections do not extend deeply and can easily be shelled out of the tissue. Microscopically they are found to consist of collections of angiomatous tissue, each vessel lined with a definite layer of endothelium; one or more of these vessels being very much dilated but still lined by endothelium.

Immediately internal to the fibromyomatous tissue is a circle composed of fresh unclotted blood, through which run trabeculæ of degenerated myomatous material. Evidently degeneration of the muscle has taken place in this layer and the weak vessel walls have given way, the pressure of the blood further degenerating the muscle fibres. Internal to this layer is the large core of white thrombus, in which neither fresh blood, nor muscular trabeculæ can be found. This is a late stage of the condition found in the adjacent ring: the muscular trabeculæ have entirely disappeared, the blood has clotted and finally formed a white thrombus.

Low power micro-photograph from the fibro-myoma, showing the large number of thin-walled blood vessels.


White thrombus
Layer of bright red blood
Fibro-myomatous tissue undergoing angeomatous degeneration
Patch of angeomatous tissue with dilated blood spaces
Normal uterine tissue
Cavity of uterus

The sequence of events has probably been as follows: The patient has had this angiomatous tumour for many years although she never suffered from any symptoms due to its presence. Degeneration, probably cystic, took place in its centre and blood was poured into the space: evidently this hæmorrhage was not under sufficient pressure to distend the walls and give general symptoms as the patient had no history of illness previous to the present one: subsequently this hæmorrhage clotted and is now represented by the mass of white thrombus in the centre of the tumour. In the illustration dark patches are shown in this area, but these are only spaces where the thrombi have shrunk and not red blood as in the adjacent layer. Later, as the atheromatous condition of the arteries occurred, the blood pressure in the thin-walled vessels increased, and, a short time previous to operation, many of these small vessels around the old thrombus ruptured and a large amount of blood was poured out and formed a complete layer between the thrombus and the fibromyomatous tissue. On this occasion the blood was poured out under great pressure, the uterus was greatly distended and so gave rise to the severe abdominal pain and general shock, which necessitated an urgent operation. Though she was very collapsed at the time of operation and all her arteries were very atheromatous, the patient made a good recovery.

I cannot find a description of a similar case in the literature of fibromyomata of the uterus so think this specimen is worthy of record.

REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

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GYNÆCOLOGY.

Primary malignant tumours of the vagina.

VIRENQUE, working in Faure's *service* at the Hôpital Cochin, contributes an article (*Arch. Mens. d'Obstét. et de Gynécol.*, February 1913) on primary malignant tumours of the vagina, excluding secondary invasions and metastases. In addition to epithelioma he describes sarcomata and chorion-epitheliomata. For whatever reason, epithelioma of the vagina is comparatively rare; heredity is seldom a factor in its etiology; pessaries and other sources of irritation seem to be exciting causes; prolapse, on the contrary, is a rare concomitant; precedent leucoplasia sometimes is found: the majority of cases is found in advanced life. Sarcoma is still rarer, and though mostly found in women from 40—60 years of age is also found in children of two years; its causation is unknown. Chorion-epithelioma is found at the age of 20—50; in 18 cases reported by Duplay five occurred after a vesicular mole: it probably results from embolism, and the integrity of the uterus is difficult to explain—spontaneous cure of its tumour, implantation of cells from a healthy placenta during pregnancy or delivery. Tumours of Wolffian origin are extremely rare.

These various tumours are of course microscopically distinct but all run the same clinical course—invasion of the neighbouring tissues and lymphatics. Epithelioma may become diffuse or remain in a circumscribed patch. The posterior wall of the vagina is the one most commonly attacked: the anterior wall produces tumours chiefly from aberrant glandular *cul-de-sacs* or embryonal remains. Cancers of the lateral walls soon pass to the posterior wall.

The histological characters of the various forms at different seats are given in detail and attention is drawn to the rapid invasion of the tissues

by the sarcomata, especially in young subjects: metastases are more common in chorion-epithelioma than in other forms of malignant disease.

The symptoms are given as indications for a careful physical examination. The prognosis is bad especially if pregnancy supervenes. The diagnosis is sometimes complicated by ulceration following on treatment by hot air and irradiation.

As to treatment, it must be surgical: medical and *x*-ray therapy is only palliative. Various high and low operations—Pozzi, Dührssen, Leprévost, Herzfeld, Schauta, and others—are described. Virenque concludes that in cancer of the lower third of the vagina the tumour should be widely extirpated from below; with ablation of the inguinal glands, &c.: in cancer of the middle and upper thirds, in fat or exhausted women, Schauta's operation of free removal *per vaginam*, with, or without, extirpation of the rectum, may be attempted: in cancer of the middle and upper thirds in thin women in good general condition, a combined abdomino-vaginal operation is recommended, beginning *per vaginam*, according to Faure's method: but even by this method, with its high post-operative mortality, recurrences are to be feared. E.H.L.O.

The creation of an artificial vagina by means of transplantation of a piece of small intestine (Baldwin's operation), with an account of a case.

Brouha (*Revue Mens. de Gyn., d'Obst., et de Ped.*, April 1913). The question of creating an artificial vagina when this passage is absent has taken on a renewed phase of interest owing to the discovery of further methods of operative procedures for this purpose.

The cases suitable for operation have to be distinguished from those where the lower genital organs are malformed and there is resulting retention of menstrual fluid. The suitable cases are those where the woman is deprived of her genital organs and is in a condition of malformation that she considers worse than any disease. The main point is whether there is a vagina in such cases as, whether the internal genital organs are present or not, the difficulties are the same if the vagina is absent.

To burrow up between the bladder in front and the rectum behind is a fairly easy matter, but to prevent the sinus thus made from closing afterwards is well-nigh impossible. Even though grafting, dilatation by bougies and other means are taken for its prevention, closure is almost certain.

Two methods have, in recent years, been used to try to evade this difficulty. One, by Baldwin, has as its object the transplantation of a loop of small intestine to form a vagina; whilst in the other, by Schubert, a piece of the lower end of the rectum is utilised for the same purpose.

In the author's case he modified Baldwin's operation for the patient that came under his care.

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This was performed on September 15, 1912, and consisted of three steps.

REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

LIST OF COLLABORATORS:

LONDON Alban Doran, F.R.C.S.; J. B. Banister, M.D.; J. Barris, M.B.; F. E. Taylor, M.D.; C. White, M.D.; J. A. Willett, M.D.; J. Wyatt, F.R.C.S.
EDINBURGH. Miss J. H. Filshill; R. W. Johnstone, M.D.; James Young, M.D.
DUBLIN. R. M. Allan, M.B., Ch.B.
GLASGOW. E. H. L. Oliphant, M.D.
ABERDEEN. W. R. Pirie, M.B.
MANCHESTER. J. S. Young, M.D.; J. Chisholm, M.D.
BIRMINGHAM. H. B. Whitehouse, M.S.; Lewis Graham, M.D.
LIVERPOOL. H. Leith Murray, M.D.
SHEFFIELD. W. W. King, M.B.
DUNDEE. J. A. C. Kynoch, M.B.
CHELTENHAM. C. J. N. Longridge, M.D.

GYNÆCOLOGY.

Primary malignant tumours of the vagina.

VIRENQUE, working in Faure's *service* at the Hôpital Cochin, contributes an article (*Arch. Mens. d'Obstét. et de Gynécol.*, February 1913) on primary malignant tumours of the vagina, excluding secondary invasions and metastases. In addition to epithelioma he describes sarcomata and chorion-epitheliomata. For whatever reason, epithelioma of the vagina is comparatively rare; heredity is seldom a factor in its etiology; pessaries and other sources of irritation seem to be exciting causes; prolapse, on the contrary, is a rare concomitant; precedent leucoplasia sometimes is found: the majority of cases is found in advanced life. Sarcoma is still rarer, and though mostly found in women from 40—60 years of age is also found in children of two years; its causation is unknown. Chorion-epithelioma is found at the age of 20—50; in 18 cases reported by Duplay five occurred after a vesicular mole: it probably results from embolism, and the integrity of the uterus is difficult to explain—spontaneous cure of its tumour, implantation of cells from a healthy placenta during pregnancy or delivery. Tumours of Wolffian origin are extremely rare.

These various tumours are of course microscopically distinct but all run the same clinical course—invasion of the neighbouring tissues and lymphatics. Epithelioma may become diffuse or remain in a circumscribed patch. The posterior wall of the vagina is the one most commonly attacked: the anterior wall produces tumours chiefly from aberrant glandular *cul-de-sacs* or embryonal remains. Cancers of the lateral walls soon pass to the posterior wall.

The histological characters of the various forms at different seats are given in detail and attention is drawn to the rapid invasion of the tissues

by the sarcomata, especially in young subjects: metastases are more common in chorion-epithelioma than in other forms of malignant disease.

The symptoms are given as indications for a careful physical examination. The prognosis is bad especially if pregnancy supervenes. The diagnosis is sometimes complicated by ulceration following on treatment by hot air and irradiation.

As to treatment, it must be surgical: medical and *x*-ray therapy is only palliative. Various high and low operations—Pozzi, Dührssen, Leprévost, Herzfeld, Schauta, and others—are described. Virenque concludes that in cancer of the lower third of the vagina the tumour should be widely extirpated from below; with ablation of the inguinal glands, &c.: in cancer of the middle and upper thirds, in fat or exhausted women, Schauta's operation of free removal *per vaginam*, with, or without, extirpation of the rectum, may be attempted: in cancer of the middle and upper thirds in thin women in good general condition, a combined abdomino-vaginal operation is recommended, beginning *per vaginam*, according to Faure's method: but even by this method, with its high post-operative mortality, recurrences are to be feared. E.H.L.O.

The creation of an artificial vagina by means of transplantation of a piece of small intestine (Baldwin's operation), with an account of a case.

Brouha (*Revue Mens. de Gyn., d'Obst., et de Ped.*, April 1913). The question of creating an artificial vagina when this passage is absent has taken on a renewed phase of interest owing to the discovery of further methods of operative procedures for this purpose.

The cases suitable for operation have to be distinguished from those where the lower genital organs are malformed and there is resulting retention of menstrual fluid. The suitable cases are those where the woman is deprived of her genital organs and is in a condition of malformation that she considers worse than any disease. The main point is whether there is a vagina in such cases as, whether the internal genital organs are present or not, the difficulties are the same if the vagina is absent.

To burrow up between the bladder in front and the rectum behind is a fairly easy matter, but to prevent the sinus thus made from closing afterwards is well-nigh impossible. Even though grafting, dilatation by bougies and other means are taken for its prevention, closure is almost certain.

Two methods have, in recent years, been used to try to evade this difficulty. One, by Baldwin, has as its object the transplantation of a loop of small intestine to form a vagina; whilst in the other, by Schubert, a piece of the lower end of the rectum is utilised for the same purpose.

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This was performed on September 15, 1912, and consisted of three steps.

First, a transverse incision was made from the perineum to the bottom of Douglas's pouch and the wound plugged.

Second, the abdomen was opened by Pfannenstiel's method. A loop of ileum 25 cm. long was resected at a distance of 30 cm. above the ileo-cæcal junction. It was left attached by its mesentery. The continuity of the ileum was restored by a lateral anastomosis. The two ends of the ileal loop were closed by purse-string sutures. To the anti-mesenteric border, at its centre, a piece of silk was attached. The pelvis was then examined. No trace of uterus was present, but there was an ovary on each side somewhat larger than the normal. There was also a parovarian cyst on each side as large as an orange. The cysts were removed. The bottom of Douglas's pouch was opened into the perineal wound and the silk put into it. The abdomen was then closed.

Third, with the patient again in the lithotomy position, the gauze was drawn out of the perineal wound and the silk pulled through drawing down the intestinal loop in a V-shaped piece with its apex towards the vulva and its ends pointing upwards towards the abdomen. The wall of the loop to which the silk was attached was now incised and the edges of the opening thus made were sewn to the edges of the perineal incision. Thus was formed a bifid vagina which was composed of the two limbs of the V-shaped loop. The operation took 1½ hours. Convalescence was perfect.

The patient has been seen continually since and five months after the condition present consisted of a passage between the urinary meatus and the anus lined by intestinal mucosa. There was a certain amount of thick mucous discharge which in no way caused any irritation of the surrounding skin. The cavity admitted a finger, without pain, for 4 cm. into a bifurcating passage.

The patient is going to marry shortly. L.G.

Large urethral caruncle in a girl of nine years.

Coleman G. Buford (*Journal Amer. Med. Assoc.*, vol. 60, p. 1281). The patient was seen a year after a fall. There was a mass about the size of the end of a thumb protruding from the labia in the region of the urethra. There was a purulent discharge but no itching or discomfort on passing water. The base of the tumour was spread over almost the entire circumference of the urethra, extending about a quarter of an inch upward. The tumour was excised and no recurrence took place. C.N.L.

A year's work in hysterectomy.

John B. Deaver (*American Journ. Med. Sciences*, April 1913) analyses the indications of 109 cases of hysterectomy performed by him during the year 1911. The indications were :—

Myoma	62 cases.
Myoma + sarcoma	1 ,,
Adenomyoma	3 ,,
Carcinoma of cervix	8 ,,
Carcinoma of body	6 ,,
Carcinoma of Fallopian tube	1 ,,
Cornual pregnancy	1 ,,
Stenosis of vagina	1 ,,
Prolapse of uterus	1 ,,
Incomplete abortion	3 ,,

"Metrorrhagia"	11 cases.
Miscellaneous inflammatory conditions	11 ,,

The operations performed were :—

Complete hysterectomy	31 cases.
Supravaginal hysterectomy	4 ,,
Vaginal hysterectomy	74 ,,

Mortality of the series : 1 per cent.

The interest of this article lies in Dr. Deaver's views as to the justification or rather desirability of the operation, especially in relation to myomatous disease and carcinoma.

In myoma Dr. Deaver condemns hysterectomy for symptomless tumours as also "in neurasthenic conditions due to the patient's knowledge that she has a tumour." On the other hand, a fibroid symptomless *per se* may produce alterations or complications in the uterus itself or in surrounding structures. Thus in the series of cases under discussion chronic endometritis was present in 40; chronic salpingitis in 36; chronic öophoritis in 16; and cystic disease of the ovary in 9. But whether this coincidence be causal or accidental the argument for operation is strengthened by the probability of other lesions calling for correction. Benign forms of degeneration in a fibroid are not sufficiently serious to warrant preventive surgery. The incidence of sarcomatous degeneration is so rare as to be almost negligible; on the other hand it is well to bear in mind that irregular hæmorrhage may be the symptom of carcinoma of the body as well as of a fibroid. The question of operation may be shortly summed up in the words "the removal of fibroids is indicated by, and not before, the occurrence of symptoms."

Dr. Deaver takes a pessimistic view of hysterectomy for cancer and blames delay for the bad results; "cases are brought to the surgeon by the development of such severe symptoms that the patient can no longer be satisfied by palliative and expectant treatment, and operation only saddles the blame of the failure of treatment upon surgery." Again, "practically the only cases of cancer which I can claim to have cured are those which were operated upon before the disease had actually been demonstrated to be present"—a cryptic and epigrammatic observation. Acting on this belief, Dr. Deaver has performed hysterectomy on twelve occasions for chronic endometritis and twice for incomplete abortion. Not all were suspected of being carcinomatous but in several the probability was strongly considered. The author regrets the apathy of the public in general, and of the medical profession in particular, over the significance of irregular uterine hæmorrhage, until both come to regard this symptom as at least as important as a lump in the breast; he is of opinion that there can be no improvement in the operative results of carcinoma of the uterus.

J.A.W.

A new method of shortening the round ligaments.

Siegfried Figueroa (*Journal Amer. Med. Assoc.*, vol. 60, p. 1042). An incision is made over the internal abdominal ring at right angles to Poupart's ligament. The external oblique is incised and the round ligament isolated and freed from the surrounding tissues. A silk ligature is then tied around it. The index finger is then introduced through the internal ring, separating from the abdominal wall proper the extra-peritoneal fascia and peritoneum in a direction upwards and inwards as high as one desires to fix the anterior end of the ligament, going well back of the rectus muscle.

The two ends of the silk ligature are then threaded into the eye of a large, blunt hernia needle which is introduced into the track made by the finger and thrust from behind forwards through the rectus and its anterior sheath. The round ligament is then drawn through by means of the silk ligature. A similar procedure is adopted on the opposite side, thus pulling the uterus up into position, and the loops of ligaments are fixed to the aponeurosis by a few points of suture. C.N.L.

An operation for ventrosuspension by the round ligaments.

HAROLD NEUHOF (*Journal Amer. Med. Assoc.*, vol. 60, p. 1701). In order to avoid the formation of bands the following operation is done. After the abdomen has been opened through the usual median incision the round ligament is exposed by retracting one side of the wound. A catgut suture is then begun at the internal abdominal ring by passing the needle through peritoneum with the overlying transversalis fascia. The suture is continued by alternately grasping the round ligament and the parietal peritoneum with the overlying transversalis fascia. The sutures are continued to within a short distance of the uterine cornu and is here ended. To avoid atrophy it is essential that the sutures pass through and not around the round ligament. The opposite side is treated in the same manner. The results have been highly satisfactory and in no case have the deep epigastric vessels been injured. C.N.L.

Effects of operative castration: the ovary as an organ of internal secretion.

GRAVES (*Amer. Journ. Obstet.*, April 1913) admits, after considerable experience, that the beneficial effect of ovarian extract on the hot flushings of the artificial or operative and the physiological or climacteric menopause is an established fact. In other terms, ovarian extract is invaluable in the treatment of the vaso-motor disturbances following castration and those incident to the change of life. In the treatment of other conditions in relation to the female sexual system, the value of ovarian extract is problematical, and Graves admits that he has not had satisfactory results in treating cases of amenorrhœa, dysmenorrhœa infantilism, sterility, lactation-atrophy and the menorrhagia of uterine insufficiency. Graves wrote letters to a long series of patients who had undergone supravaginal hysterectomy and removal of both ovaries for fibro-myoma of the uterus, pelvic inflammation and double ovarian disease. 136 replies were received. Out of the 136 patients, 66 were really troubled with hot flushings for a few months, 42 felt occasional mild flushings, and 28 never experienced the symptom at all. In answer to the question whether the patient was more nervous or less nervous after the operation, 96 reported that they were actually less nervous than before, and 40 replied that they were just the same as before or more nervous. Only 101 replied to a question as to sexual sensibility. 72 declared that there was no change, 5 that desire and sensation were stronger, 18 that the feeling was diminished, and 6 that it was simply changed, probably meaning diminished. [Graves sets an excellent example in publishing the results of removal of the appendages. A more strict limitation and sub-division of cases would have been advisable. The reporter has published an analysis of 100 cases of sub-total hysterectomy for fibro-myoma uteri (*Proc. Roy. Soc. Med.*, Obst. and Gyn. Soc., 1911) where very strict conditions were respected as to after-histories, under two years being

included. The retention or complete removal of part of the endometrium near the os internum was taken into account. Graves rightly admits that, in respect to the cases for pelvic inflammation, the subsequent relief from the pain occasioned by the inflammatory lesions must have accounted to a great extent, if not entirely, for the relief of "nervous" symptoms, which by the way patients are rarely if ever competent to define. In respect to changes in sexual sensibility, another matter associated with influences leading to fallacy, Graves admits that in the cases where there had been inflammatory changes, not only was the patient's "nervous" condition improved by the removal of tender organs, but dyspareunia was cured by the same means, and desire was stronger partly because coitus had ceased to be painful since the operation. On the other hand, that function was in other subjects painful after the operation, owing to no inherent change in the nerve reflexes but to local causes. Graves is not alone in believing that the evidence of physiologists as to the internal secreting power of the ovary is up to the present not conclusive and incontestable at least as far as its application to therapeutics is concerned.—REP.] A.D.

Primary cancer of the ovary.

MASSABUAU and ETIENNE (*Revue de Gyn. et de Chirug. Abdom.*, March 1913) have an important monograph on this subject. Papillomatous cysts which have invaded surrounding organs are excluded and only the solid type of primary cancerous tumour is considered. In the course of their study they collected 250 cases from the literature where the diagnosis has been confirmed by microscopic examination of the growth and references to these cases, together with short abstracts in the majority of instances, are given at the end of the article.

They also give details of several unpublished cases of their own, and as the authors have done a large amount of research on the histology of the ovary, their reports on the histology of the malignant growths in question are of considerable importance.

The monograph goes into great detail, the 250 cases are divided up so as to give details of age, relation to menopause, and parity. The tumours are fully described and tabulated according to weight and size—in connection with the latter, the prevalent habit of comparing tumours with such variable standards as vegetables and different birds' eggs is well shown, fifty-seven cases being under this table compared with six where the actual measurements are given.

The authors suggest a new classification for ovarian carcinoma, which is :—

1. Typical epithelioma of the ovary.
   - A. Carcinoma or alveolar epithelioma
     - (*a*) Encephaloid carcinoma.
     - (*b*) Fibrous carcinoma.
     - (*c*) Myxomatous carcinoma.
   - B. Cylindrical epithelioma
     - (*a*) Mucous epithelioma.
     - (*b*) Colloid epithelioma.
2. Clear-celled epithelioma.
3. Chorion-epithelioma.
4. Lutein-celled epithelioma
   - (*a*) Hypernephromata.
   - (*b*) Cancers of the corpus luteum.
   - (*c*) Cancers from the interstitial cells of the ovary.

The commonest growth is the "alveolar epithelioma" or medullary carcinoma.

The ordinary types of ovarian carcinoma have been said to originate in the Graafian follicle, the germinal epithelium on the surface of the ovary and from Wolffian remains.

The authors exclude the former and give their reasons for so doing; they accept the Wolffian hypothesis for the cylindrical epitheliomas but on the whole they look on the surface epithelium as the usual point of origin.

The second group (clear-celled epithelioma) was first described by Chenobin in 1911—the authors record a case in detail and give an illustration of a section of the growth.

Regarding chorion-epitheliomatous growths, while admitting their possible origin from pre-existing ovarian pregnancies or teratomata, they incline to the belief that the appearances of these tumours are due to metaplasia of the cells of an ordinary carcinoma and point out that giant cells are not rare in ovarian carcinomas.

The lutein-celled carcinomata are rare and are of the three types mentioned in the table. To explain their origin from the corpus luteum it is necessary to accept the idea that the corpus luteum is formed of epithelial and not connective tissue cells. Eight solid tumours of the corpus luteum are published but they exclude half of these and publish a case of their own with good illustrations.

The symptoms and complications (including the question of visceral and gland invasion) are discussed and the results of different operative measures are given. These are of interest as it appears that the radical operation of removing both ovaries and the uterus has less than *half* the immediate mortality of unilateral ovariotomy besides giving better results as regards permanent cure. The question of a radical operation including the removal of the lumbar glands is discussed. C.W.

Hæmorrhage from a corpus luteum cyst.

J. Adams (*British Medical Journal*, April 5, 1913) reports a case of a married woman of 18, nullipara, who was first seen when she had been ill for two days with abdominal pain, vomiting and diarrhœa, temperature 102° F. On abdominal examination there was tenderness in both iliac fossæ and general rigidity more marked on the right side; vaginal examination revealed nothing more than some tenderness in the right fornix. She was expecting to menstruate and the flow commenced the day after she was first seen, lasted five days and was normal.

The day after menstruation ceased the abdomen was opened to remove the appendix, free blood was found. The appendix was removed as it was inflamed, the right uterine appendages were normal, but the left ovary was found to be enlarged and cystic and to have a small mass of dark clotted blood adherent to it; when this was removed blood oozed freely from a small sharply-cut puncture.

The peritoneum contained about three pints of blood-stained fluid and clots; microscopically the cyst showed the characters of a corpus luteum and no sign of an ovarian pregnancy. J.M.W.

Chronic appendicitis and sclero-cystic ovaries.

Lapeyre, Tours (*Archiv Mens. d'Obstét et de Gynécologie*, March 1913), draws attention to the frequent concurrence of these two conditions. For a time women's troubles were ascribed to ovaritis and öophorectomy was

the panacea: later appendicitis was blamed and the ovaries were left severely alone. Lapeyre is of opinion that the association of the two lesions is not accidental from the mere frequence of the conditions but both depend on a common origin. He suggests that this origin may be from the central nervous system or that possibly peripheral irritation may act on the nervous system, which again reacts on the peripheral organs through the nerves. The lesion in the appendix and tubes is not necessarily due to microbic infection. A series of seventeen cases is given in illustration of his thesis that if one set of organs alone is dealt with at the time of operation the symptoms often recur; accordingly it is advised that the laparotomy should always be in the median line, that the appendix be removed and the ovaries dealt with. These last can often be dealt with by simple ignipuncture of the cysts; the left ovary is usually the more seriously affected and may require removal; the uterus is often displaced and should be fixed by what he calls a ligamentopexy. It is essential that operation should be early before the nervous system has become so profoundly affected as to produce the concomitant visceroptoses and colitis and such like secondary troubles. E.H.L.O.

Melanosarcoma of the ovary.

Vogt (*Zeitschr. f. Geb. u. Gyn.*, Bd. lxxiii, Hft. 1) records two cases of the occurrence of melano-sarcoma in the ovary as a secondary manifestation. In one the primary growth was in the eye, in the other in the skin. The prognosis is uniformly very bad. References to other cases, both primary and secondary, are given. R.W.J.

Ectopic pregnancy associated with anomalous Fallopian tubes.

Huffman (*Surgery, Gynæcology and Obstetrics*, May 1913). In the examination of a specimen of ectopic pregnancy obtained post mortem the author found that the ovum was implanted in the isthmus of the left Fallopian tube, and that both tubes had accessory ostia. He infers from these rudimentary tubes that a second uterus was in process of development but that it retrogressed leaving uterine "rests" in the remaining tube. He further postulates that implantation can only take place in uterine mucosa. By the addition of these two theories he states that he believes there is ample support for his view that "ectopic pregnancy is caused by embedding areas which were misplaced during the maldevelopment of the Müllerian ducts." Ovarian pregnancy has to be accounted for by the same hypothesis of "rests." The author has no single fact to produce in support of his theory. W.W.K.

Pregnancy at term in the accessory horn of a bicornute uterus.

Hollænder, Kassa, Hungary, describes a case (*Arch. Mens. d'Obstét. et de Gynécol., April* 1913). The patient was a primipara of 21 years of age, admitted June 1, 1912; date of last menstruation unknown; quickening end of December 1911. She had severe pains in the hypogastrium early in pregnancy. There was a shivering an the 9th April since when she has not felt life, and there has been a slight discharge of blood. The woman appeared well. The diagnosis was made of pregnancy at term with death of child from unknown cause. On the 18th June the cervix was dilated with laminaria tents and Hegar's dilators when the uterus was found 10 centimetres deep and empty, retroverted to the left. The diagnosis was then made of bircornute uterus. The abdomen was opened and the tumour

was found adherent to the appendix and other organs; the adhesions were easily separated and the appendix was removed: the tumour was "exteriorised" and removed, along the line separating it from the normal horn, as also the right ovary and tube. The fœtus was found to measure 52 centimetres and to weigh 3450 grams. The horn was not rudimentary but a well developed accessory: fertilization must have occurred across the abdomen as there was no patent canal below, and the corpus luteum was in the left ovary only. The normal horn had not thrown off any membrane so far as could be ascertained. E.H.L.O.

Ovarian pregnancy.

ENGELKING (*Monats. f. Geb. u. Gyn.*, 1913, Hft. 6), describes a case of ovarian pregnancy at the eighth month, which had developed intra-ligamentously. The tube was intact though thickened. The cause was probably a pelvic peritonitis due to old appendicitis. He goes minutely into the description of the specimen and by a process of exclusion arrives at the above finding. The literature of the subject is given in full. R.M.A.

OBSTETRICS.

Embedding of the ovum.

BOERMA (*Monats. f. Geb. u. Gyn.*, 1913, Hft. 6) gives a very detailed description of an ovum embedded in decidua obtained from a case of abortion. It was slightly older than that of Peters. The results of his examination are compared with those of Graf von Spee and Peters.

R.M.A.

The biological diagnosis of pregnancy.

STANGE (*Münch. med. Wochensch.*, No. 20, May 1913) reports his experience of Abderhalden's results in the biological diagnosis of pregnancy. In 75 cases of obvious pregnancy he invariably got a positive reaction. In a limited experience of five non-pregnant cases the Abderhalden reaction was negative. S. describes his method and emphasises the necessity of great care in the technique of this method of diagnosis.

J.A.C.K.

Pernicious anæmia of pregnancy.

SAUVAGE and VINCENT (*Bulletin de la Société d'Obstétrique et de Gynécologie de Paris, etc.*, No. 3, March 1913) report a case of pernicious anæmia of pregnancy occurring in a iii-para, æt. 27. The patient had suffered from two attacks of jaundice before pregnancy occurred, and when she had reached the fifth month, a third attack commenced. After a few days the icteric tint disappeared and was replaced by the greenish white colouration suggestive of pernicious anæmia. For two months the patient remained in hospital, maintaining the same colour and complaining of extreme debility and dyspnœa upon the least effort. The nutrition remained unimpaired throughout this period. A condition of marked leuco-melanoderma was present about the neck and this persisted for several months after the termination of the pregnancy. Examination of the optic discs revealed a somewhat pale papilla and very tortuous veins, with a few minute hæmorrhages in the proximity of the disc.

Examination of the blood gave the following analysis:

Red cells: 800,000.

Poikilocytosis well marked. Granular and nucleated red cells in large numbers.

White cells : 30,000.

Polymorpho-nuclears	76
Large mono-nuclears	3
Small mono-nuclears	7
Eosinophiles	3
Myelocytes	5

Coagulation rapid. Serum yellowish red in colour and slightly opalescent. Urobilin and traces of biliary pigments present in the serum. Cholesterin also present.

During the period when jaundice was present, the urine contained a large quantity of biliary pigments. These diminished rapidly but urobilin remained present in large amount. No albumen was present.

The fæces retained their colour even during the stage of icterus at the commencement of the illness. Wassermann's reaction was strongly positive both in the case of the patient and her husband.

The treatment adopted consisted of rigid milk diet during the first month of the patient's stay in hospital, with the addition of white meats and meat juice during the second month. Injections of sodium cacodylate in doses of 6 centigrams every other day, hematol, and inhalations of oxygen were also administered.

Improvement occurred in the general condition and the patient left hospital against advice during the eighth month of her pregnancy. She returned a month later with hydramnios, and labour occurred at term, the child being macerated and weighing 3150 grammes. The puerperium was complicated by phlegmasia alba dolens. The anæmia persisted for several months, but gradually disappeared.

In discussing the case the authors remark upon the extreme rapidity with which improvement occurred in the blood after the evacuation of the uterus. Within seven days from the termination of the pregnancy the red cells numbered 3,000,000. At the same time they regard the pregnancy as influencing in an ulterior manner a pathological condition of the blood which was pre-existent, and not as the primary sole cause of the anæmia.

An important factor in the analysis of the blood was the condition of hæmolysis of the red cells in the circulating blood. This was demonstrated by the fixation of the red cells in Marcano's fluid. Sauvage and Vincent are inclined to think that in this case the hæmolysis was the result of hæmolysins. If this is so, however, the hæmolysins must be of the nature of autolysins inasmuch as no hæmolysis occurred with red cells taken from another patient. Several records of hæmolysinemia associated with icterus or even with hæmoglobinuria exist. Troisier's Thesis (Thèses de Paris, 1911) contains several.

In discussing the underlying cause of the hæmolysis and anæmia the authors observe that syphilis in all probability occupies a very important place in the etiology of this case. The anæmia is probably of a syphilitic nature and it has something in common with the anæmias noted by Ribadeau-Dumas and Poisot in congenital syphilitics. In conclusion, they suggest that all cases of pernicious anæmia during pregnancy should be investigated from a syphilitic standpoint. Even if all cases do not fall into this category, it may be possible to establish a definite group, and so assist in classifying a collection of observations where at present much confusion and doubt exist. H.B.W.

Sero-therapy in the pernicious vomiting of pregnancy.

Oui (*Bulletin de la Société d'Obstétrique et de Gynécologie de Paris, etc.*, No. 3, March 1913) gives details of a case of pernicious vomiting of pregnancy occurring in a primipara, aged 25, in which benefit appeared to be derived from sero-therapy. Vomiting commenced within a few days of the onset of pregnancy and quickly assumed the pernicious type. Upon admission to hospital the patient presented a distinct icteric tint. The sclerotics were yellow, the tongue dry and red, and the urine scanty and dark in colour. The temperature registered 36·7 and the pulse 140. The uterus was the size of a two, to two and a half months' pregnancy. Vomiting was continuous and the patient complained of much epigastric pain, insomnia, and cramps. No relief was obtained by gastric lavage, or abolition of all feeding, and the patient rapidly lost weight. An injection of 10 c.c. of serum from a woman in the third month of pregnancy was then administered. Slight improvement followed the same, but this was only temporary and the vomiting recurred in all its severity. Four days later a fresh injection of 10 c.c. of serum was given. From this time a progressive improvement occurred. Three weeks later, however, the patient aborted, the fœtus being mummified and of about two months development.

In discussing the case, Oui observes that it is impossible to state whether the death of the fœtus was the direct result of the serum injections. In the absence of symptoms one cannot know the exact time at which it succumbed. Le Lorier has reported a similar case before the Obstetrical Society of France, but many more observations are required before definite facts can be formulated upon the therapeutic value and risks of sero-therapy in the treatment of pernicious vomiting of pregnancy. H.B.W.

The urine and blood in eclampsia.

Landsberg (*Zeitschr. f. Geb. u. Gyn.*, Bd. lxxiii, Hft. 1) records the result of clinical and experimental observations on these points. In the majority of cases of eclampsia the urine shows a percentage increase in the ammonia N and in the amino-acid N, while the urea N is diminished. The acidity of the urine is increased to a variable extent. The alteration in the nitrogen partition bears no specific relation to the existence of eclampsia, the increase in the ammonia being merely the sequel to the increased formation of acid in the body, while the increase in the "rest" nitrogen represents renal insufficiency.

In the blood of eclamptics the fibrinogen content is usually raised, but this is probably the result of other concomitant symptoms and has in itself no bad influence. The striking similarity between the blood changes in normal and pathological pregnancy and those after the injection of tissue juices containing nucleoproteids, indicates the possibility of the changes in both cases being connected in some causal relationship.

Landsberg's experiments on dogs show that after the intra-peritoneal injection of placental juice the leucocyte count and the fibrinogen content of the blood are unmistakably increased. R.W.J.

Physometra due to fœtal putrefaction.

Bonnet-Laborderie (*Bulletin de la Société d'Obstétrique et de Gynécologie de Paris, etc.*, No. 3, March 1913), in a communication to the Obstetrical and Gynæcological Society of Lille, gives details of three cases of physometra secondary to fœtal putrefaction. Two of these cases have already been reported respectively in the *Bulletin de la Société d'Obstétrique*

de Paris, etc., July 1912, and the *Journal des Sciences médicales de Lille*, August 1912.

The first example that came under the author's notice occurred in a patient in whom tonic uterine contraction supervened upon rigidity of the cervix. The membranes had ruptured two days previously. The cervix was dilated by Bossi's dilator and delivery of a decomposed fœtus effected. During extraction gas escaped from the uterine cavity together with a putrid brown fluid. The puerperium was complicated by a parametritis of the right broad ligament, but the patient made a good recovery from the same.

The second instance occurred in a primipara, æt. 44, who sought advice on account of abnormal prolongation of pregnancy. The last menstrual period had occurred eleven months previously. Physical examination revealed the presence of a retained fœtus in a fibro-myomatous uterus complicated by placenta prævia. The patient refused treatment, but shortly afterwards was brought to the Maternity in an extremely grave condition. Laparotomy was performed and the uterus incised. Gas and foul-smelling fluid escaped, and in spite of all efforts to prevent infection the patient died within 36 hours from operation.

The author's third case concerns a primipara, æt. 24. Coitus, from which the pregnancy dated, occurred exactly 325 days before the onset of labour. Irregular uterine contractions, producing dilatation of the cervix, had taken place for ten days previous to the patient's admission to the hospital. An attempt had also been made to deliver with forceps, but the woman's medical attendant found that proper application was impossible and furthermore an offensive discharge escaped from the uterus. Upon admission to the hospital the appearance of the patient was grave: the complexion was muddy, the features drawn, the lips dry, and the pulse-rate 136. No uterine contractions were present and the organ was firm and markedly distended. Upon percussion the whole abdomen was tympanitic. The head appeared to occupy the pelvic cavity but delivery with forceps proved impossible. During the passage of the blades gas escaped from the uterus with considerable noise. It was accompanied by a thick, very offensive, fluid. Cephalotripsy was performed and an enormous hydrocephalic fœtus delivered. The child was macerated and in a state of putrefaction. Intra-uterine lavage with iodine solution was practised and the patient recovered. Convalescence was slightly delayed by suppuration of a lacerated perineum, but the woman was able to return home upon the fifteenth day after delivery.

The case presents several points of interest. In the first place the apparent lengthy duration of pregnancy may be due either to delayed fertilization after coitus, or to retention of the dead fœtus. The membranes ruptured ten days before delivery was effected. During this period several examinations were made and infection was highly probable. Finally, a point of considerable importance is the very rapid recovery of the patient after delivery, in spite of the previous grave condition and the very foul condition of the uterine contents.

Two of the author's three patients recovered, the only death occurring as a result of infection of peritoneum by the fluid and gas contained within the uterus.

In discussing the condition, Oui recommended Porro's operation as a preferable alternative to hysterectomy, when it is impossible to effect delivery by the normal route. H.B.W.

A case of missed labour.

KREISCH (*Münch. med. Wochensch.*, No. 23, June 1913) reports the following case. The patient, 24 years of age, menstruated in September 1907, and expected her confinement in June 1908. At the latter date she complained of abdominal pain unassociated with any dilatation of the cervix. The pain subsided and next morning she was quite well. August and September passed without any discomfort. In October she consulted K. The abdomen corresponded in size to a full time pregnancy. No heart sound could be heard, and the os was closed. The diagnosis lay between the retention of a mature dead child or extra-uterine pregnancy with a dead child. On the 14th October the abdomen was opened. The pregnancy was found to be uterine and the macerated child was removed. The missed labour was due to insufficient development of the uterine muscles. K. chose delivery by the abdominal, instead of the vaginal, route because the uterus could not be properly brought down, and the exposure of the field of operation was too limited. He extirpated the uterus on account of the atrophic condition of the uterine wall rendering efficient suturing impossible. J.A.C.K.

A method of altering face presentations.

ZANGEMEISTER (*Münch. med. Wochensch.*, No. 23, June 1913) refers to the results attained by Schatz and Thorn, and he quotes Opitz who reported two cases of rupture of the uterus occurring in 68 cases of altered face cases. Z. describes his method, which can be carried out by one person. It consists in placing the thumb of the hand, corresponding to the direction in which the chin points, into the child's mouth, the fingers of the same hand pressing the extended breast towards the buttocks. At the same time the external hand pushes the breach downwards towards the abdominal aspect of the child. By this method the hand works in that part of the uterus where the lower uterine segment is least stretched and where there is most space for manipulation. He used the method in five cases. In three, it was successful, in the others not so satisfactory, owing to hydro-cephalous and meningocele. Statistics are given showing the mortality of face cases ending in spontaneous delivery as compared with cases where the position has been altered. Z. gives the indications for altering face cases by his method. (1) Delayed entrance of the head after the membranes have ruptured. (2) As a prophylaxis against probable delayed labour. (3) When in face and forehead presentation, conditions arise which might prevent an early delivery or where spontaneous delivery would be too prolonged. He details the contra indications such as, threatened rupture of the uterus, eclampsia, placenta prævia, contracted pelvis with a conjugate less than 7·5 cms., abnormal size of the child's head. His method is clearly shown by an excellent diagram. J.A.C.K.

Criminal abortion in cases of extra uterine pregnancy.

NEUGEBAUER (*Gynækol. Rundschau*, 1913, Hft. 11). A critical review of 29 cases reported by various observers, where the pregnancy was extra-uterine and was not discovered before urgent symptoms occurred. These cases are discussed in detail. The mortality was 24 per cent.

R.M.A.

Rupture of Cæsarean uterine cicatrix: child delivered into abdominal cavity.

EVERKE (*Monatsschr. f. Geb. u. Gyn.*, February 1913) recently exhibited at a meeting of a German Society a uterus with ruptured Cæsarean cicatrix. The incision had been transverse and fundal. The patient had undergone Cæsarean section at the Bonn University Maternity, at the end of her first pregnancy, four years previously. She came under Everke's care for pains which set in at term in her second pregnancy. There were severe abdominal pains as well. Her usual medical attendant found that the cervix was not dilated and suspected rupture. Everke, who was called in, performed abdominal section at once. He found the dead fœtus, fully developed and enveloped in its membranes intact, lying free in the peritoneal cavity. The uterus was amputated above the cervix after the fœtus and its appendages had been carefully drawn out from the coils of bowel which enveloped them. The patient made a good recovery. The Cæsarean cicatrix had given way completely. It appeared that the muscular layers of the wound had never united and moreover there had been a rise of temperature during convalescence from the Cæsarean section four years previously. A.D.

Puerperal fever.

BONDY (*Monats. f. Geb. u. Gyn.*, 1913, Hft. 6). This is a critical review of the advances in diagnosis during the last three years. The bacteriology is very fully discussed, especially the significance of hæmolytic streptococci. Septic abortions and self-infection are considered in detail and the operative treatment is also reviewed. A full index accompanies the paper. R.M.A.

Post partum paralysis of the external popliteal nerve.

STAUDE (*Monatssch. für Geburts und Gynæcol.*, 1913, Ht. 5) records two cases—one a vertex presentation in a primipara, which terminated with a difficult forceps delivery; the other a breech presentation in a multipara, which gave considerable trouble in the extraction especially of the arms. In the former case the patient complained of pains in one leg shortly after delivery. The muscles supplied by the nerve were paralysed and the electrical reactions, especially the faradic, greatly altered. There was also a vesico-vaginal fistula. Similarly in the breech case there was anæsthesia of the outer side of the leg and dorsum of the foot and paralysis quickly set in. The adductors of the opposite thigh were also affected.

Comparing his cases with those already recorded, Staude notes that there is always a history of difficult labour, especially associated with a generally contracted pelvis.

The prognosis is not very favourable and recovery is always very protracted—in his cases eighteen months and six months respectively. The treatment is that of any neuritis.

There is a very full account of the anatomy of the lumbo-scaral plexus and the causes of such a lesion are carefully discussed. R.M.A.

Hæmorrhagic disease of the new-born infant treated by horse-serum.

WALTER B. JENNINGS (*Journal Amer. Med. Assoc.*, vol. 60, p. 1154). A female infant, four days old, weighing 8 lbs., vomited a little bright red blood. The next day about an ounce of bright red blood was passed by the rectum. An injection of 7 c.c. of normal horse-serum was given sub-

cutaneously. Another injection was given the same evening. The next day a tar-like motion was passed and the urine was stained with blood. A rash appeared on the face, feet, legs, and arms. No further bleeding took place and the cord separated without any hæmorrhage. C.N.L.

A severe case of melæna neonatorum cured by injections of defibrinated human blood.

MERKENS (*Münch. med. Wochensch.*, No. 18, May 1913) enumerates the various therapeutic agents which have been employed for this condition. The best results hitherto have been obtained from the gelatine treatment, but even here the mortality is about 40 per cent. M. refers to the work of Morawitz on the treatment of severe anæmia by intra-vascular transfusions of fresh fibrinated blood where there is a tendency to the occurrence of thrombosis. This latter danger can be avoided by defibrinating the blood for a lengthened period and injecting it 20 to 30 minutes later. Some authorities prefer the intra-muscular injection on account of less danger of thrombosis. M. describes a case cured by the intra-muscular injection of defibrinated human blood—25 to 30 c.c.ms. of blood were removed from an adult and defibrinated for 15 minutes. Of this defibrinated blood 12 c.c.ms. were, half an hour later injected into the gluteal muscle of the newly-born infant. A week after the treatment, examination of the blood showed great increase of the hæmoglobin and red blood corpuscles. The favourable results were attributed to increased formation of thrombin, which is deficient in melæna neonatorum. J.A.C.K.

Salvarsan treatment of the infant.

CHAMBRELENT, Bordeaux, presented a report to the Soc. Obstét. de France (*Arch. Mens. d'Obstét. et de Gynécol.*, April 1913) in which he collates a large number of opinions and of reports from France and abroad.

In the first chapter he considers salvarsan administered indirectly through the nursing mother or through the milk of an animal (goat). There is no doubt that the arsenic does pass into the milk and it does so somewhat irregularly and with some days' delay. C. is very guarded in expressing an opinion but inclines to think that in some cases this method of treatment may be of benefit, though in some cases aggravation of symptoms has been noted (fresh eruptions). He seems to agree with Ehrlich that to obtain any benefit the nursing mother must be suffering from well-marked syphilis; that the aggravation of symptoms may be due to the setting free of toxins from the destruction of spirochætes; that the treatment accordingly should not be begun till some days after the mother has received her injection, and that the benefit obtained is from antibodies and not directly from the arsenic in the milk. He is also of opinion that other treatment—mercury and iodides, is often advisable or necessary. A table of 51 cases is appended.

In the second chapter he discusses the results obtained by direct injection of salvarsan. Here again there is sometimes an aggravation of symptoms, ascribed to the setting free of toxins by too large initial doses. A number of opinions and tables are given and Chambrelent concludes, much as in the indirect method, that the direct method is sometimes of use, but must often be supplemented by ordinary medication. Intra-venous injection, on the German plan, is considered dangerous, so the intra-muscular or subcutaneous route is preferable. The dose, until further experience warrants increase, should not exceed 10 to 15 milligrams per kilo. of body weight.

E.H.L.O.

Salvarsan in midwifery practice.

LEHRELAND and BRISSON, working in the Clinique Tarnier, give the results of their observations (*Arch. Mens. d'Obstet. et de Gynéc.*, Feb., March, 1913) in Bar's *service*, of treatment by salvarsan and neo-salvarsan of pregnant women, and of women after labour and of sucklings. The subject is discussed at great length and among this conclusions they express the following opinions :—a negative Wassermann reaction in the pregnant mother does not necessarily indicate that the fœtus is unaffected; in moderate doses salvarsan may be injected without risk of killing the fœtus or of causing miscarriage, but large doses are dangerous to mother and to fœtus; the dose should not be repeated till the observer has satisfied himself that the arsenic is being satisfactorily eliminated; the Wassermann reaction is inconstant and often temporarily negative; the treatment is of benefit to the fœtus; relapses are common especially in regard to the nervous system; a patient must not be considered cured till at least a year after the reaction has become negative. In the suckling the grave cases are not to be treated by the method but sub-acute cases do well: neo-salvarsan seems more dangerous than salvarsan and both may possibly fix the lesions in the nervous system. The difficulties and dangers are too great to allow of this treatment being adopted in current practice.

E.H.L.O.

ROYAL SOCIETY OF MEDICINE.

Section of Obstetrics and Gynæcology.

Meeting held at the Society's House, Thursday, June 5, 1913.

The President, Dr. Amand Routh, in the Chair.

Dr. Arnold Lea read a Short Communication on a

Case of Puerperal Venous Thrombosis after a Normal Labour, associated with Toxæmia, continuing for Five Months.

It was discussed by the President, Dr. Walter Tate, and Dr. Eden.

Mr. Corrie Keep read a Short Communication on

Two Cases of Solid Pedunculated Papilloma of the Ovary.

Mr. R. H. Paramore read a paper on

The Intra-Abdominal Pressure in Pregnancy.

Measurement of the pressure in the rectum examined in 24 cases of pregnancy, 19 primiparæ and 5 second cases, show it is increased in pregnancy. Not only is this so in the erect position, but also when lying down on the back and on the side at ease. It has been thought by those who have previously investigated the pressure in the rectum that this increase is due to an increase in the visceral weight, and that the pressure above the pregnant uterus is not increased. Hörmann, who made many investigations in all sorts of cases, came to this opinion. But his conclusion is shown to be untenable, since the rectal pressure is not found to vary merely with increase of visceral mass (*i.e.*, weight), nor, indeed, with increase of visceral volume.

The opinion arrived at from a consideration of the intra-abdominal pressure in the non-pregnant was that whilst no doubt the visceral weight plays some part in the production of the pressure, the compression of the visceral mass caused by the concerted reactions of the abdominal wall, thoracic diaphragm, and pelvic floor is much more important. And that this compression is, in fact, greater in pregnant women than in the non-pregnant, and explains the increase in rectal pressure in them, is shown by the changes in structure of these same musculatures during pregnancy. The pelvic floor musculature hypertrophies in pregnancy. That this is so is easily revealed by comparing the thickness of this musculature in a pregnant with its thickness in a non-pregnant woman with flat abdomen.

The change in the abdominal wall is more complicated. The recti hypertrophy. And from a study of the changes occurring in the flank muscles in corpulency, we should expect an hypertrophy of these in pregnancy. But the separation of the recti, which clearly is associated with the pull of the flank muscles, shows these muscles have been unable to relax adequately during a sufficient period of time each day to allow an uncomplicated hypertrophy. The separation of the recti shows the flank muscles resist the distension of the abdominal cavity by the enlarging uterus. Their condition during pregnancy seems to be one of spasticity, allied to the state of the muscles of the legs in cases of spastic paraplegia.

This condition, which leads to a degeneration of the muscles, so that during active movements they are not capable of the same amount of contraction as in the normal, is associated during resting states with an increased tonic contraction. Thus whilst the pressure in the rectum during pregnancy, in cases in which this spasticity of the transversales is well marked, is not varied during active movements, such as straining or lifting weights, as much as in the normal; during resting conditions, the pressure resulting from the increased tonic contraction of these and of the other enclosing musculatures is maintained higher than in the normal.

The thoracic diaphragm is obviously concerned in the maintenance of this pressure within the abdomen. Its function is not only to maintain a negative pressure in the thorax, but also by bearing upon the epigastric viscera to cause a positive pressure amidst them, which it does by reacting in a co-ordinated manner with the abdominal wall. In pregnancy, the thoracic diaphragm is either in a state of uncomplicated hypertrophy, or in one of hypertrophy super-added to which is a spastic state, similar to that of the flank muscles of the abdominal wall. Clearly, the increased tonic contraction of the abdominal wall thrusts or tends to thrust the epigastric viscera upwards into the chest, and the thoracic diaphragm has to oppose this upthrust, and this it does by pressing upon the epigastric viscera. If it does not continually do so, it is clear the epigastric viscera would rise into the chest; and the negative pressure in the thorax would not be able to be maintained, and so the heart and lungs would cease to function.

Measurements of the pressure in the stomach in pregnancy ought to be taken, but it is difficult to find opportunities for doing this in the normal, and there are two fallacies to be guarded against in reading the significance of such pressures obtained. The passing of a tube into the stomach upsets one. The nausea it causes is probably associated with a diminution of the tone of the abdominal wall and thoracic diaphragm. It is difficult to be sure the pressure values obtained are as great as those existing under ordinary conditions. The other fallacy is this: One is likely to assume that the pressures obtained at term indicate the highest values that have existed throughout the pregnancy. But this is no such criterion. Towards term a considerable yielding of the belly wall musculature occurs, due to its progressive weakness, and the position of the pregnant uterus is altered. The fundus projects more anteriorly and comes to a lower level. This cannot but be associated with a fall of pressure in the stomach. The diminution in volume of the pregnant uterus caused by premature rupture of the membranes, so common in primigravidæ, determines a similar result.

Two points in conclusion are to be noticed: (1) Since separation of the recti is an indication of spasticity of the flank muscles of the abdomen, and is caused by their being stretched, the spastic state must arise before such separation begins; for the latter is a consequence of the former. Therefore it would not surprise us to find high-pressure values in the mid-period of pregnancy. (2) Since the tone of an hypertrophied muscle is greater than the tone of the same muscle when not hypertrophied, a spastic state of the flank muscles must be induced earlier and more readily in women in whom they are well developed than in those in whom they are not so well developed. And it is just in the well-developed women who become pregnant that higher pressure values are obtained. So also it is in these that the toxæmia of pregnancy is so liable to occur.

The paper was discussed by Dr. GRIFFITH, the PRESIDENT, Mr. BRYDEN GLENDINING, and Dr. EDEN.

Dr. GRIFFITH said he was satisfied that Dr. Paramore had proved that intra-abdominal pressure was increased in pregnancy with primigravidæ. But he had offered no evidence in the case of multigravidæ with lax abdominal walls, and in them it was highly improbable that there was any similar increase except that directly due to the increased weight of the uterus and its contents. The author appeared to think that there was something wonderful about the ascent of the uterus, but he (Dr. Griffith) did not think it differed from ascent of the bladder due to distension, *i.e.*, the base of the organ remained at the same level. Dr. Griffith also questioned the author's statement that the specific gravity of the pregnant uterus and its contents was approximately that of water.

The PRESIDENT (Dr. Amand Routh) did not think that Dr. Paramore had sufficiently proved his first point to advance his main theory that the toxæmias of pregnancy are due to exaggerated increase of intra-abdominal pressure. The preliminary point now brought forward that the increase of intra-abdominal pressure observed by him and others in pregnancy is due to the increased tone or tonic contractions of the muscles of the abdominal wall and thoracic diaphragms when at rest had not been proved by him. Dr. Routh thought it was a pity that the variations in intra-abdominal pressure had been calculated by observing the pressure in the rectum, bladder, and stomach, for he thought that such tests were not reliable, and could not with certainty be taken to represent the intra-abdominal pressure.

It may be true that exaggerated intra-abdominal pressure was associated with the pregnancy-toxæmias, but if so, it was almost certain that both the toxæmia and the increased pressure are due to bio-chemical causes.

Mr. GLENDINNING said that the only reliable method of estimating intra-abdominal pressure was by a manometer introduced into the peritoneal cavity; the author had measured the intra-visceral pressure, which was not at all the same thing. He also disagreed with the author as to the cause of separation of the recti, and thought it was due to stretching of the aponeurosis, not to the pull of the transversales muscles.

Dr. EDEN said that although the author's conclusions were not in themselves unreasonable, his paper failed to carry conviction because it consisted of too little fact, and too much theory. The absence of control observations on non-pregnant women, and upon other common forms of abdominal distension such as ovarian and fibroid tumours greatly weakened his case. Again, the conclusions he drew from the association of muscularity and corpulency, viz., that the abdominal muscles became hypertrophied as the result of an increase of intra-abdominal fat, did not appear to him (Dr. Eden) a sound one; it was quite feasible that these persons were unusually muscular before they became corpulent. Dr. Eden thought the author would find it very difficult to establish a mechanical theory of toxæmia, in view of the careful scientific work of recent years which pointed so strongly to bio-chemical causes.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

By the invitation of the North of England Society members of the Edinburgh, Glasgow, and Midland Obstetrical and Gynæcological Societies held a Conjoint Meeting with this Society in Manchester, on Friday, May 30, 1913. Dr. FOTHERGILL (President of the North of England Society) in the Chair.

After the Meeting the visitors were entertained at dinner by the home Society and on the Saturday morning a Laboratory Meeting was held at which a large number of interesting specimens were exhibited by members of the four Societies.

Miss Louise McIlroy (Glasgow) described

A Case of Dysmenorrhœa Complicated with Renal Calculus. Operation.

The patient, æt. 35 years, married nine years, sterile, consulted me at the out-patient department of the Glasgow Royal Infirmary on account of severe pain in the right renal region, occurring before the onset of menstruation, and of about a year's duration. Previously menstruation had been normal in type, occurring every four weeks and lasting three to four days. At the onset of the present illness menstruation began to be scanty in quantity and the right-sided pain was very severe for about a week before the onset of the flow. She consulted a doctor in Dublin, who told her she had a movable kidney on the right side. The pain did not shoot down the groin, nor was there any history of colic at any time. Micturition was frequent on occasions.

On examination the patient appeared healthy but depressed. The heart and lungs were normal. Urine normal. The right kidney was found to be prolapsed (2nd degree) on examination in the erect attitude. The uterus was somewhat retroposed, the appendages being normal. No tenderness was made out in the region of the kidney or ureter.

The patient was admitted to the Infirmary, and I am indebted to Professor Munro Kerr for permission to operate on the patient and for his assistance. The patient was curetted on account of the sterility, but as I felt the dysmenorrhœa was mainly due to the renal condition I operated ten days later. The oblique lumbar incision was used, and before withdrawing the kidney I palpated that organ to exclude the presence of a calculus and thus prevent it slipping into the ureter. A calculus was found in the pelvis of the kidney and was removed after incision, the hæmorrhage being controlled by hot saline solution. The kidney was sutured and the capsule stitched to the fibrous tissue and muscle of the last rib and to the lower aponeurosis. A drain was left in for four days. The patient has been seen, at intervals, several times since leaving hospital and has had no return of her former pain, menstruation being perfectly normal.

The point of interest in the case lies in the dysmenorrhœa being referred to the right renal region. The difficulty lies in the question of how far the calculus was concerned in the production of pain. As there were no symptoms pointing to renal calculus it was not thought necessary to have the kidney exposed to the *x*-rays.

Dr. Arnold W. W. Lea (Manchester) stated, that in his opinion the case of dysmenorrhœa described by Miss McIlroy, associated with some pain in the right hypochondrium were two independent conditions. The dysmenorrhœa was relieved by the curettage. The pain in the right side was cured by the removal of the renal calculus.

Dr. Walter Swayne (Bristol) said that he had met with a case similar in some respects to that described by Miss McIllroy, in which severe pain at the menstrual periods was relieved by the patient wearing a belt to support a movable right kidney.

Mr. K. M. Pardhy (Birmingham) said that the causal relation between

prolapsed kidneys and menstrual disorders had long been definitely established, specially by Goelet in America. In this country, Suckling of Birmingham had long ago drawn attention to this relation between the two conditions and has had many patients suffering from dysmenorrhœa and other menstrual disorders cured by nephropexy. Latterly, Billington and he (the speaker) had cured many cases of dysmenorrhœa by nephropexy, where one or both kidneys were prolapsed and where other means had failed to relieve the menstrual trouble. He did not know what other explanation of the causal relation had been given, but the one most rational was that prolapsed kidneys caused obstruction of the ovarian veins, thus giving rise to venous congestion of the ovaries and consequently menstrual disorders.

Dr. DONALD (Manchester) thought that curetting of the uterus previous to the operation on the kidney might have been a factor in the cure of the patient's dysmenorrhœa. The double operation at least made it more difficult to decide as to whether the condition of the kidney caused the dysmenorrhœa and whether the operation on the kidney was the means of the cure. In his experience pain in one or other iliac region, and not in the hypogastrium, was quite common in cases of acute dysmenorrhœa.

Mr. BECKWITH WHITEHOUSE said that many cases of so-called dysmenorrhœa were undoubtedly neurotic in origin. The same remark applied to a very large number of patients whose symptoms were ascribed to "dropped kidney." He was therefore not in the least surprised to hear that a patient whose condition was diagnosed as nephroptosis, should also complain of dysmenorrhœa.

Miss MCILROY in reply, said that the curetting was performed on account of sterility; she admitted that the result of the operation would have been clearer without this curetting as far as the etiology of the dysmenorrhœa was concerned. If the calculus was a factor in the production of pain, it was only at the pre-menstrual period that it caused any appreciable symptoms.

Dr. THOMAS WILSON and Mr. BECKWITH WHITEHOUSE (Birmingham) read a paper on

"POINTS IN THE PATHOLOGY OF TUBAL GESTATION, PARTICULARLY IN RELATION TO TUBAL MOLE AND ABORTION."

The communication was based upon the investigation of thirty specimens by dissection under normal saline, immediately after operation. The authors find that it is possible in all cases to trace the lumen of the tube around and beyond the mole. Furthermore the mole itself is always attached by a narrow base to some part of the tubal mucosa. This area never exceeds $\frac{1}{2}$ inch in diameter and is regarded as the site of original implantation of the ovum. Sagittal and coronal sections through the attached base have shown the presence of tubal mucosa on the surface. In no case, however, is it possible to trace the mucosa for more than a few millimetres, thus proving the fact of rupture of the ovum from its embedded position in the wall through the tubal mucosa. The shape of a tubal mole when freshly dissected is ovoid or finger-like. This contour is the result of tension of the walls of the tube upon the coagulated blood. That the wall of the tube does exert considerable pressure upon the mole is shown by longitudinal furrows upon the surface of the clot. These correspond to the rugæ normally present in the tubal mucosa. In the case of partial tubal abortion a sulcus is frequently present between the intra- and extra-tubal

portions of the clot. This corresponds to and is produced by the margins of the ostium abdominale.

Tubal abortion is produced by the peristaltic action of the tube wall being sufficient to sever the attachment of a mole to the mucosa. Such peristalsis has been observed in the case of an operation performed when tubal abortion was in progress. When abortion has been complete the authors find that it is possible in some cases still to ascertain the site of original implantation of the ovum.

A factor of extreme importance in the etiology of tubal rupture, mole, and abortion is that of resistance of the tissues. The anatomical conformation of the tube is such that the direction of least resistance is away from the uterus and towards the ostium abdominale. When intra-tubal rupture occurs, the blood always takes the direction of least resistance and flows towards the outlet of the tube. This is proved by the fact that in all the specimens of mole or partial abortion, the attachment of the clot was at its proximal pole. Also, in all cases examined, the site of implantation was the floor of the tube. If an ovum reaches the narrow isthmic portion, the wall may become so thinned by the eroding action of the trophoblast that the direction of least resistance is outwards through the peritoneal coat rather than inwards towards the ampullary lumen. In this case rupture of the tube will occur.

Dr. PURSLOW (Birmingham) said that he had recently operated on a case in which both tubal rupture and threatened tubal abortion were present in the same tube; the fimbriated end was open and a mass of blood clot was protruding and, on the upper aspect of the tube, at about its middle, was a rent through which a fœtus of about eight weeks' development, enclosed in its unruptured amniotic sac, was hanging; he asked Mr. Whitehouse if he had met with such a case?

Dr. HAIG FERGUSON (Edinburgh) expressed the pleasure with which he had listened to the paper, with its record of careful work. He had formed the impression that in Mr. Whitehouse's cases, tubal abortion was not the most frequent termination in ampullary pregnancy, and he merely wished to ask Mr. Whitehouse if that was the case, as Dr. Ferguson's own experience was quite the opposite.

Dr. BALFOUR MARSHALL (Glasgow) said that if he rightly understood what had been said regarding the site of attachment of the tubal mole it did not quite agree with the views of the embedding of the ovum in the tubal wall, nor with what he had found in his microscopical examination of specimens. In cases of tubal mole he had found villi penetrating as far as the peritoneum, and in some cases of rupture the villi were protruding through the rent in the tubal wall. While he agreed with the view that tubal rupture more often occurred when the ovum was embedded in or near the isthmus, he had met with rupture of the tube in the middle of the ampulla and also close to the fimbriated end just behind the ostium abdominale although the tube was not occluded, so that rupture might occur in any part of a patulous pregnant tube.

Mr. BECKWITH WHITEHOUSE in reply, said that undoubtedly tubal mole and tubal abortion were by far the commonest modes of termination of a gestation in this position. The reason for this was a combination of the factors of tissue erosion and tissue tension.

The majority of ova in ectopic pregnancies were implanted upon the floor of the tube in the ampullary portion, and here the direction of least resistance was into the lumen of the ampulla.

The points that Dr. Wilson and he wished particularly to emphasise were the narrow attached base of all tubal moles, the presence of tubal mucosa upon the surface of this base or stalk and not upon the rest of the mole, and finally, the impression of the rugæ of the tube upon the surface of the mole.

He was interested to hear of Dr. Purslow's case of combined tubal rupture and abortion. Dr. Wilson and he had had a similar example and this was included in the present series.

Mr. Scott Carmichael (Edinburgh) read a paper on

"Ovarian Grafting in the Human Subject. A Deduction from Experimental Evidence and Two Cases Performed in the Human Subject."

About five years ago, a series of experimental observations were made on the effects of ovarian grafting in animals, for the most part in rabbits. The results of these experiments were published in the *Journal of Obstetrics*, 1907.

The sum conclusion of these experiments was :

1. That it is possible to remove the ovary from its normal position and re-implant in different tissues, and that it would live for a period of months, while the Graafian follicles matured, and the ova retain their vitality. It might also probably preserve its function of internal secretion.

2. That 80 per cent. of transplanted ovaries tend sooner or later to degenerate, this may be of the nature of a simple fibrous atrophy, or a cystic degeneration.

3. That Graafian follicles and ova, although they may persist and mature for some months, ultimately become cystic.

4. The uterus tends to atrophy in cases of transplantation, and these experiments have not shown that the ovary is capable of elaborating its internal secretions, in sufficient quantity to preserve this.

These experiments corroborate in part the findings of such investigators as Kuauer, Halban, and others.

Since then, Marshall, Jolly, and many others have successfully transplanted ovaries in animals, and go so far as to say that the ovary can not only grow and form mature follicles, but can also elaborate its internal secretion.

In these (the author's) experiments the uterus invariably showed atrophic changes, showing that any internal secretion that might persist, was not sufficient to control the uterus in its normal state. He was able then from experimental evidence to consider the use of ovarian grafting as a therapeutic possibility, as the results of those experiments were more satisfactory than was expected.

In experimental cases the best results were obtained even in small animals (such as the rabbit) by grafting parts of the ovary and not the whole ovary, and the success of the graft depended to a large extent on the site of grafting.

As a rule intra-peritoneal grafting was unsatisfactory, whereas subcutaneous and especially intra-muscular grafting gave the best results.

The author has recently had two occasions in the human subject to try the value of ovarian transplantation.

Mrs. S., æt. 35, the mother of five children, was sent by Dr. Deuchares of Bryngrigg complaining of severe pelvic pain associated with menorrhagia. She was a somewhat thin nervous woman, upon whom all the usual medicinal means had been tried.

Pelvic and abdominal examination showed that there was extreme tenderness of both ovaries, the Fallopian tubes being free and apparently healthy, but the uterus considerably enlarged and firm. No fibroid tumour was to be felt. The condition being one obviously of so-called "painful ovary" with no definite pathological change, and the patient being extremely anxious to have some operation performed to relieve her, the abdomen was opened.

The uterus was enlarged and fibriotic, both ovaries were slightly cystic more especially the left.

The left ovary and tube with the uterus were removed. A very high supravaginal hysterectomy was performed, so as to conserve practically the whole lower uterine segment with its endometrium.

The right ovary, which looked the healthier of the two, was split in its long axis into two halves.

One of these was inserted below the anterior sheath of the right rectus muscle, with its raw surface upon the muscle.

The operation was performed on August 4, 1912. The patient, who was somewhat anæmic at the time of operation, was seen at intervals up till January 1913.

She had a slight vaginal blood-flow in the middle of October. She had what she described as a typical menstrual period lasting for three days from January 2nd and again from January 29th, 1913.

She had had no pelvic pain since the operation. The transplanted ovary could be felt quite distinctly underneath the skin, and had not in any way changed its shape or size since operation.

At the time of the two menstrual periods in January, however, the ovary had become more tender and apparently enlarged, and since then the ovary has always remained painful.

She was seen again in March and shown at a Clinical Meeting of the Medico-Chirurgical Society. The ovary was distinctly larger and very tender, so that the patient requested that it should be removed. She had again some slight menstrual discharge at the end of March but was admitted again to hospital on April 10 and the ovary removed on April 12, 1913.

The ovarian mass removed was about the size of a small walnut. On section it was found to be completely cystic, the cysts being surrounded by a somewhat dense fibrous capsule. Microscopically no trace of healthy ovarian stroma or lutein tissue was to be seen.

The interest in the case lies in the fact that the ovary became cystic, the changes being similar to those occurring in the experimental cases.

It is also further of interest that this ovary, originally a painful ovary, remained so in the transplanted position. There was no inflammatory reaction in the surrounding tissues to explain this pain and it is probable that the pain was actually in the ovary itself. It is interesting that this variety of painful ovary (small cystic) should remain painful when removed from its natural blood and nervous supply. The ovary at the time of transplantation was apparently a normal one with small follicular cysts upon it. On its removal it consisted of several large cysts.

The patient has remained much relieved of pain since her operation, and has not yet had any further hæmorrhagic discharge. She has however signs of the onset of the menopause as shown by headaches and periodic flushings.

The second case was that of a patient, Miss N., æt. 29, who was operated upon by another gynæcologist in 1906 for a painful right ovary which was

removed. The severe ovarian dysmenorrhœa from which she suffered was relieved for a time and subsequently recurred in the left ovary and the condition of the patient was as bad as before.

In September 1910, the author removed the left ovary, leaving the uterus which was normal.

The ovary was split longitudinally as in the former case, but in this case both raw surfaces were apposed to the posterior layer of the broad ligament and stitched in position.

She was almost immediately relieved of her ovarian pain, and beyond a little pelvic discomfort at times may be considered to be completely cured.

It is interesting to note however that she has not menstruated since the second month after the operation, and that artificial climacteric symptoms of a slight nature were present.

In both these cases therefore, in spite of grafting, menopausal symptoms supervened, showing that although in the one case the graft lived, the internal secretion was deficient.

In both cases the treatment was carried out for the same condition. In one the ovary remained painful, and in the other, although we do not know what its condition is, it gave no further trouble.

Before closing this paper, incomplete though it is, I should like to refer to one point, the causation of the cystic change.

The cysts present are obviously retentive cysts of Graafian follicular origin, and do not seem to be dependent upon any increase or decrease of the vascular supply, or upon any nervous influence.

Recently, the author conducted a series of experiments in dogs and rabbits, to ascertain if interference with the vascular supply to the ovary had any effect in producing cystic formation of that organ.

In three dogs the ovarian vein was ligatured as it crosses the lower pole of the kidney, a definite anatomical position for its detection in these animals.

This represents practically the whole venous return from the ovary. The ovaries in all cases, when examined some weeks later, were completely atrophic. Corroborative evidence was given in the case of rabbits, although the smallness of the vessels and the difficulty of avoiding injury to the artery at the same time was a difficult one.

Ligature of the two arteries which supply the ovary of a rabbit also causes complete atrophy of the organ. Ligature of one or other artery does not seem to interfere with the life of the ovary.

The deductions to be drawn from these experiments which are somewhat briefly detailed here, were that vascular changes in the ovary do not appear to have any effect in producing cystic changes.

Marked interference with either the arterial or venous channels will cause atrophy of the ovary, and partial interference, which however is not sufficient to prevent circulation in the ovary, does not cause any structural change in it.

These experiments help to explain that any cystic formation in transplanted ovaries is purely a retentive cyst formation, and is not dependent upon any interference with the blood circulation.

In conclusion, ovarian grafting in the author's hands, has been disappointing, and while it is worth trying in cases where it is important to conserve ovarian tissue, too much must not be expected of it. It would seem at any rate to diminish the rapidity of onset of a climacteric, and let the patient down more gently.

Miss McIlroy (Glasgow) said she had performed a series of experiments upon the results of ovarian grafting in laboratory animals; and with Professor Munro Kerr had employed grafted ovaries in several patients. The clinical results of grafting ovaries were somewhat disappointing in so far that the grafted tissue became absorbed ultimately, but it was of benefit in relieving to some extent the onset of menopausal symptoms. These symptoms were found to be less severe when a portion of the cervix was left behind. Miss McIlroy said that in her experience no amount of ovarian grafting was of the same value as leaving even a small portion of an ovary in its original position.

Mr. Beckwith Whitehouse said that in his opinion a true estimate of the value of ovarian grafting could only be made in the case of patients who possessed a uterus as well as the grafted ovarian tissue. The continuation of the menses was the only real clinical indication that a graft had been successful. Furthermore, it was quite possible that a relation existed between the internal secretion of the ovary and the uterine endometrium, and that neither could exert its normal action apart from the other. Therefore, the indications for ovarian grafting would always be limited. He had once performed heteroplastic grafting in the case of a patient from whom he had removed the uterus and both ovaries for chorion-epithelioma. The indication for the operation was a severe artificial menopause unrelieved by any of the ordinary measures. The woman had been better for a few months but the "flushes," etc., then returned, and he could not consider it a success.

As regards autoplastic grafting, he had been more successful and had recently published the results of a case in the *Clinical Journal* (May 21, 1913). In this patient he had removed both uterine appendages for advanced inflammatory disease. The uterus however was left, and before closing the abdomen he had scattered "seeding" ovarian grafts into the rectus muscle. Menstruation had remained regular although the operation had been performed over a year ago. No symptoms suggestive of the menopause had supervened, and he could only think that in this case the grafts had become established and were producing their internal secretion.

Dr. Donald (Manchester) had had no experience of transplantation of the ovaries, but he thought that there was a good deal of exaggeration in the statements of many authors as to the effects of removal of both ovaries. It had been his routine practice for the last ten years at least to remove both ovaries when he performed the operation of abdominal hysterectomy for fibroid of the uterus. He felt quite sure that the cases in which very troublesome symptoms, usually ascribed to the removal of ovaries, occurred were very rare, and invariably in highly neurotic patients. He was collecting some evidence on this point from a large series of cases, and hoped to be able to have the results soon.

Dr. Barbour Simpson (Edinburgh) said the first matter to be decided was what was to be regarded as a physiologically healthy ovary. Opinions differed so widely as to whether a portion of the ovary which appeared healthy might be left behind at the time of operation. In Mr. Scott Carmichael's first case, a second operation was required later on for the removal of the transplanted portion of ovary. The menstrual history in both cases was interesting, menstruation continuing at intervals in the case of the first patient whereas it had not reappeared in the second patient after operation. The results were not sufficiently convincing to justify the

adoption of transplantation, if the ovary were healthy it might be left where it was, otherwise it was better removed altogether.

Dr. WALLS (Manchester) pointed out the difficulty of arriving at a correct opinion without careful observation of a large number of cases. He was in perfect agreement with Dr. Donald in removing both ovaries when doing an abdominal hysterectomy. He found the immediate recovery much more smooth : there were no second operations for ovarian cyst, such has had been his misfortune when ovaries had been left—and it must be remembered that the menopause was perhaps the most usual time for the development of such cysts : and finally he was distinctly of opinion that contrary to the general idea the radical operation was *not* more likely to be followed by severe menopausal symptoms than was a simple hysterectomy. As a matter of fact it had been his custom not to remove the ovaries when doing a vaginal hysterectomy—simply because it was somewhat more easy to leave them—and he was quite convinced that these patients had no advantage whatever in regard to menopausal troubles but rather the contrary.

Dr. BALFOUR MARSHALL (Glasgow) described

(*a*) A CASE OF MIXED-CELLED SARCOMA OF THE MYOMETRIUM.

Sarcoma is uncommon compared with carcinoma of the uterus, and it most often originates in the myometrium.

The patient was married at the age of 45 and had one pregnancy which ended in a miscarriage at the fifth month.

The menopause occurred at 47. Except for several attacks of difficulty in urination, which occurred during the first years of the patient's married life, there was nothing of note in the history till July 1912, when a slight discharge appeared which lasted a few weeks. At first red the discharge soon became pale in colour and then ceased. About the middle of September 1912 difficulty in urinating commenced. For eight days there was no pain, but the difficulty then increased and the patient suffered great pain till on 1st October absolute retention of urine occurred requiring regular catherization till the date of operation.

The patient was a big stout woman, and although she looked ill had not lost flesh. The vagina was so narrow that it only admitted one finger, and was displaced against the symphysis by a large rounded tumour which completely filled the pelvis. The tumour proved to be the enlarged uterus, and the condition exactly simulated what is found with an incarcerated retroverted gravid uterus at the 18th week, the small menopausal cervix being found high up above the symphpsis pubis. All attempts at reposition in order to relieve the pressure on the urethra, and consequent retention of urine, failed.

The bladder was displaced upwards into the abdomen, while the urethra was greatly elongated and compressed. The urine contained much pus with a trace of blood due to cystitis. The examining finger could not reach beyond the anus owing to compression of the rectum by the uterus.

The case was diagnosed as one of large fibroid in a retroverted uterus, the rapid enlargement being due to malignant new-growth.

The patient was really too ill to stand a major operation as she was very weak, and frequently vomited bile-stained fluid; but as the obstruction of the rectum was becoming an urgent symptom total abdominal hysterectomy was performed on 22nd October, 1912.

The operation presented no great difficulty although the impacted uterus

could not be elevated till the bladder had been separated and the broad ligaments cut down to the cervix.

The tumour had no capsule, and grew from the posterior wall of the uterus in its upper half and from the fundus. It looked like a large rounded degenerated fibroid. The uterine wall was stretched and there being $\frac{1}{8}$th inch thick at the site of tumour attachment, and at other parts not much thicker.

The tumour, which had a mottled reddish appearance on section, whitish towards its attachment and had a pulpy feel, proved to be a mixed-celled sarcoma. Only a few muscular fibres were found over its free surface.

Dr. Marshall was of opinion that it was a case of sarcomatous growth involving and completely replacing the structure of a pre-existing fibromyoma, as the history of urinary difficulty at the time of the menopause twenty years previously suggested the presence of a fibroid at that time.

As a contrast to this case, Dr. Marshall showed the drawing of a uterus with a simple fibroid also projecting from the posterior wall and fundus, and causing hæmorrhage five years after the menopause in a patient aged 56.

Owing to the history of metrorrhagia and emaciation and the finding of a greatly enlarged uterus a diagnosis of sarcomatous new-growth in a fibroid was diagnosed. A total hysterectomy was performed but microscopical examination failed to discover any evidence of malignancy either in the tumour or endometrium.

Dr. Marshall was of opinion that although innocent fibroids sometimes caused hæmorrhage in women past the menopause, and he had met with at least two such cases, metrorrhagia more often betokened malignant new-growth in the fibroid, and therefore total hysterectomy was justified in all such cases.

Since writing this paper Dr. Marshall had also removed a large intra-ligamentary fibroid from a patient, several years past the menopause, with pressure symptoms. On section it looked like a degenerated fibroid with large hæmorrhages into its substance. Microscopical examination showed spindle-celled sarcoma.

(*b*) A Left Parovarian Cystoma with Torsion of the Pedicle containing Fallopian Tube, Fimbria Ovarica, and Mesosalpinx.

The patient, æt. 38, the mother of eight children, had complained of more or less constant pain in the left lower quadrant of the abdomen dating from a miscarriage four years previously at which time she was confined to bed for six weeks, but what the illness was she could not state.

Examination showed a tense cystic tumour filling the left side of the pelvis and displacing the uterus to the left and anteriorly. The tumour was immovable, and a pedicle could be felt running from the left uterine cornu to the tumour. This was diagnosed as a thickened tube due to salpingitis, in view of the history; and the tumour was regarded as an adherent ovarian cystoma.

Laparotomy was performed on 16th January, 1913. The tumour proved to be a left parovarian cystoma measuring $4\frac{3}{8} \times 2\frac{3}{4} \times 3$. It was not adherent but impacted by suction. The normal ovary lay between the cyst and the uterus. The outer half of the tube and fimbria ovarica, greatly stretched, formed a band running obliquely and completely round the upper half of the tumour. The cystoma was attached to the top of the broad ligament by a pedicle showing two complete turns as if the tumour had been twisted

round reverse clock-wise. The pedicle was composed of tube, fimbria ovarica, and mesosalpinx superior to the ovarian vessels which ran an undisturbed course.

A drawing of the tumour with its twisted pedicle was shown.

Dr. PURSLOW (Birmingham) said that he had operated on a case of parovarian cyst with twisted pedicle; in his case the characteristic symptoms of torsion of the pedicle were present; the specimen showed that the twist, which was a well marked one, had occurred on the distal side of the ovary, and the latter was not affected by the acute congestion and interstitial hæmorrhage which was present in the cyst and corresponding Fallopian tube.

Dr. HAIG FERGUSON (Edinburgh) had operated on two cases of torsion of a parovarian cyst. One of the cases was in a patient aged 56, in which there were three twists of the pedicle. The patient had been sent to hospital under the impression that it was acute appendicitis. The tumour seemed almost to grow visibly after admission. It was a right-sided tumour, twisted towards the middle line, and was full of blood.

Dr. Ferguson would like to know if the experience of those present coincided with his own, that axial rotation of cysts, in general, tended to occur towards the middle line; also if others had noticed that occasional hæmatosalpinx was the result of torsion of ovarian cysts, a fact which he thought had not been generally recognised in considering the ætiology of hæmorrhages into the Fallopian tube.

Dr. BALFOUR MARSHALL in reply, said he was interested to hear that Dr. Ferguson had met with cases as he could not recollect having seen this complication described. He had met with torsion of the uterus, of the Fallopian tube, and with torsion of ovarian cystomata, not infrequent in the experience of all gynæcological surgeons, but this was the first example he had come across of torsion of a parovarian cystoma.

Dr. JOHN LINDSAY (Glasgow) read a paper on

"A CONTRIBUTION TO THE PATHOLOGY OF EARLY PREGNANCY."

Throughout a period of twenty years of general practice the etiology of abortion has been for me an attractive field of enquiry, and my practice having been mainly among the industrial population, in which class premature termination of pregnancy is very frequent, my opportunities for observation have been not inconsiderable, and I have got together a collection of specimens illustrating various pathological conditions of the embryo and decidua. One of these conditions has always aroused my special interest, that one in which the gestation sac contains no embryo. It is of common occurrence, so much so that an impression has formed in my mind that a majority of the abortions of the first two months of pregnancy are of this variety, and I have come to the conclusion that these sacs without embryos represent the more advanced stage of that less frequently observed condition in which the embryo is strikingly small in comparison with the chorionic vesicle in which it is contained. To that conclusion I have been led by an investigation into the pathology of some embryos of this character, of which I have in serial sections seven specimens. On the first six I have already reported in the *Journal of Obstetrics and Gynæcology of the British Empire* (April 1912). The seventh confirms and supplements the results obtained from the others by showing the same morbid process in a less advanced, if not in the initial stage.

Rather than present a detailed account of this my latest specimen, as

I had at first intended to do, it will, I think, be more appropriate at a meeting of this kind if I give in outline the results I have arrived at and the inferences I have drawn from the study of the whole series.

The general features of this type of abortion sac are displayed in the specimen I show you, which was given to me for examination by Dr. Mary B. Hannay, of the Royal Samaritan Hospital, Glasgow, only a few days ago. The sac, as you will see, is enormous in comparison with the size of the embryo, which yet is much larger than any of the kind I have hitherto seen. The amnion does not closely invest the body, but is in contact with the whole inner surface of the chorion, a stage of development that is reached at a much later date than that indicated by the dimensions and the developmental characters of the embryo. The embryo itself is malformed as are all the members of my series, photographs of which I show you. The malformation varies in the different specimens and does not conform to any teratological type. Interest, however, lies not in the maldevelopment but in the pathological happenings with the tissues. These may be summarised as follows.

At isolated spots deep in the mesoderm degenerative changes set in. At these spots the newly proliferated cells retain the primitive round form and do not mature. They have a disposition to invade neighbouring parts especially hollow organs like the neural canal and the primitive gut, and they damage and destroy the proper cells of these. Their nuclei, hyperchromatic from the beginning, afterwards break into fragments, and the affected tissue becomes converted into granular cell débris. The degeneration begun and proceeding thus in patches gradually extends through the whole body, the ectoderm of the external surface maintaining its integrity longest of all. The embryo now falls away from the cord, and may be found loose in the sac; or, more frequently perhaps, it goes to pieces by the breaking down of the ectoderm, and the débris of the degenerated cells is dissipated through the liquor amnii.

Meanwhile the envelopes are living and healthy and continue to grow. The stump of the cord partaking of the nature of the membranes may persist after the disappearance of the embryo, and so give rise to the erroneous opinion, when the sac has been ruptured during expulsion, that the embryo has been lost among the clots. In the walls of the sac hæmorrhages occur. These are secondary and are not the cause of the retrogressive metamorphosis referred to. When in spite of the hæmorrhages the sac is long retained, as it may be even up to the full term of pregnancy, it becomes, as I believe, a blood-mole.

A very notable point is the fact that the retrogressive metamorphosis begins centrally in the embryo, and the periphery is later in becoming involved. Equally worthy of note is the fixation of some of the primitive features of development, indicating an early entrance into the morbid state; and the association of these with the developmental marks of later date points to the continuance of the pathological process through a period of time. Obviously we have to do not with a *post mortem*, but with an *intra vitam* change which leads through necrobiosis in the tissues to somatic death. What is the cause of this?

Necrobiosis is regarded as the outcome of malnutrition; and malnutrition of the cell may be due to defect in the quality of the nutrient media; it may be due to defective power of assimilation on the part of the cell; or it may be due to both of these in combination. At first I was disposed to ascribe the necrobiosis in these embryos to abnormal states of the maternal fluids

on which the fertilised ovum depends for the material of its growth and development. Two of my early specimens were from a patient who, while under my care, had two miscarriages, two still births, and a premature confinement. Out of nine pregnancies only two children have survived. The only evidence of ill-health which she presented was an intermittent albuminuria which appeared to be of toxæmic origin.

In the early days of my enquiry I had also under observation a patient who miscarried repeatedly and always so that the embryo never was found. She suffered from intermittent glycosuria implying an anomalous state of her blood. In most other cases of abortion coming under this category the women appeared to be healthy, but it is seldom possible altogether to exclude toxæmia. I still think that abnormalities in the constitution of the maternal blood are a factor in the causation of the kind of abortion in question; but I am now inclined to attach more importance to defect in the assimilative function of the ovum.

The ovarian ovum with the completion of maturation loses the power of assimilating nutriment, and can recover this power only by being fertilised. If there is undue delay in fertilisation, as experimentally proved with such material as can be utilised for the purpose, the ova and sperm of echinoderms, for instance,—if there is this undue delay the ovum makes a feeble response to the stimulus of the sperm cell, and polyspermy ensues followed by an imperfect development which soon comes to an end in death.

The sperm cell in like manner may become unfit to perform its function in a normal way. When subjected to the influence of the *x*-rays the spermatozoa are enfeebled but retain their motility. If the dosage is not too large they may still be capable of fertilisation, but the ova fertilised by them produce only an imperfect embryo which soon dies, while the embryonic envelopes continue to grow. The product, judging from the description of the experiments, is very similar to abortions of the kind we are dealing with.[1] The effects of the *x*-rays, of course, do not come into account in ordinary life. There is another agent, however, which acts in a similar fashion, and is not far to seek. Normal semen is alkaline. If it is rendered slightly acid the spermatozoa are enfeebled and lose their motility. The normal secretions of the female passages are also alkaline; but in disordered states of the genital organs they frequently become acid. If you take the trouble to test with litmus paper in making vaginal examinations with the speculum you will find that it is so. In simple vaginitis, even when it is not severe, the reaction of the vaginal secretion may be strongly acid.

While it may not be easy, perhaps not even possible, directly to associate these facts with anomalies of gestation in the human subject they are, it seems to me, well worthy of being taken into account in the pathology of early pregnancy.

Dr. Nigel Stark (Glasgow) read a paper on

"Some Cases of Inversion of the Uterus."

Dr. Nigel Stark said he had seen four cases. The first was one of the typical acute puerperal variety, the patient a healthy primipara of 24 years. The labour had been normal and uneventful and was attended by a qualified medical practitioner. Almost without warning excruciating pain was felt,

1. Dubreuil and Rejaud, *Comptes Rendus de la Société de Biologie*, 1908, Tome i, p. 1014.

sharp bleeding occurred, and the uterus became completely inverted. In less than an hour the patient died in a state of complete collapse from shock and hæmorrhage. No traction on the cord, nor undue suprapubic pressure had been exerted.

It was believed by Dr. Stark that the accident is more frequent than is usually asserted, and as it occurs generally in primiparæ under thirty it is a very distressing sequel to parturition. That it is exceedingly dangerous is undoubted. The mortality rate is probably at least 25 per cent. It was argued that to combat the shock is the prime necessity in treatment, reposition of the uterus being carried out later.

The second case was of the chronic puerperal variety, the patient a young married woman of 23, whose only untoward symptom after the birth of her child was a somewhat exaggerated hæmorrhage. She was seen by Dr. Stark four months after the birth when the uterus was found inverted. Taxis failed to replace it, and the abdomen was opened. The posterior uterine wall was split up and with great ease the uterus was brought into normal position. The operation was easy, rapid, unattended with shock, and the patient made a good recovery. Küstner's operation was discussed but was not thought so satisfactory as that done.

The other two cases were non-puerperal. The patients were 56 and 57 years of age and in both instances the chief symptom was bleeding. One case had been diagnosed as a polypus and the woman died of exhaustion before operation could be performed. The other was not so exsanguined. During examination in the lithotomy position the uterus was perforated by the finger. The abdomen was opened and panhysterectomy performed. the patient is alive and well, several years afterwards. In both cases a tumour was attached to the fundus and in both it was of the nature of a carcinoma. Fibroid tumours and sarcomas have been frequently described as the agents in the production of uterine inversion : hitherto cancerous growths have not been reported.

Dr. MALINS (Birmingham) said that in his experience of a large midwifery practice the occurrence of acute inversion was comparatively rare, much more so than we were led to believe from books. The instances he had met with were reduced at the time of happening, or after a short interval, to allow the effects of the accompanying shock to be lessened. No doubt the collapse and severity of the associated pain is due to the pressure upon the ovaries and tubes within the cup of the inversion, together with the arrest of the circulation from the constriction. The complete and classical account of this complication by the late Mr. Crosse, of Norwich, has left little to be added from a clinical point of view. With regard to treatment he was firmly convinced that immediate reduction was the plan to be preferred, though sometimes it may be desirable to wait a few hours until the patient has rallied. In pursuing the reduction it is better not to detach the placenta first, it acts as a cushion upon which the required pressure may be made by the hand : as the uterine wall is thinner at the site of the placenta there is always some risk in separating the placenta before attempting to replace the uterus, the hand used can readily detach the placenta when in situ. As to chronic inversion he was more than ever convinced that nearly all cases could be restored by elastic pressure with a properly adapted repositor, of which Aveling's was no doubt the best yet devised. Given time, with careful supervision, there can be no question that this method is infinitely preferable to the various and ingenious operative measures so often found to be suggested.

Miss IVENS (Liverpool) advocated the use in chronic cases of an Aveling's repositor, which should be given a trial before operative measures were adopted. In a case of puerperal inversion of a month's duration this instrument had successfully re-inverted the uterus in 24 hours.

Dr. BRIGGS (Liverpool) was convinced from personal experience that in cases of chronic puerperal inversion amongst the younger women, the duration of the inversion, the density of the uterine wall, and the size of the uterus varied sufficiently to demand a method of treatment short of hysterectomy but beyond elastic pressure, even if the cup of the Aveling's repositor had been specially made to fit. Just as in some cases of hernia an incision reduces the resistance and risks so Küstner's incision by the vaginal route is, with safety, effective at an easily accessible site.

Dr. A. W. RUSSELL (Glasgow) read a paper on

"VAGINAL HYSTERECTOMY, WITH SPECIAL REFERENCE TO THE CLAMP METHOD."

As the time for the afternoon meeting had almost expired before this paper was reached, it was imposible for Dr. Russell to read his complete communication, and he used the few available minutes to describe the steps of the clamp method which he had employed in most of his cases. He referred those interested in the subject to the complete paper which he hoped would be accepted for early publication in one of the journals. He intended to show by his experience of 43 cases done by the clamp method, with only two deaths, that we have in this method, on account of the expedition with which it can usually be performed and the almost complete absence of shock, a useful alternative available when an abdominal operation would be out of the question and the ordinary vaginal operation by ligature would take longer time and offer less security as to prevention of hæmorrhage, in a patient who was already very weak and ill. Dr. Russell said that at first he was not in favour of the vaginal route, but was early in his work impressed with the methods of such men as the Landaus' in Berlin and Pryor in America, while he had seen Pean and Segond long ago in Paris and Schauta more lately in Vienna operating by the vaginal route, and he felt that his technique was incomplete without a familiarity with these various methods of operation. The preliminary preparation of the patient by rest, dieting, and laxatives was as necessary here as elsewhere and the means of local asepsis were the same. Through a transverse incision in front of the cervix the lower boundary of the bladder was reached and the bladder was pushed up by blunt dissection, by means of a swab folded over the finger, till the peritoneum was reached. By pinching up the posterior fornix in the middle line Douglas's pouch was incised and the opening stretched with the fingers before inserting a small tape swab to keep up the bowel. The peritoneum was now entered in front between the bladder and the uterus and the opening similarly stretched with the fingers before introducing another swab with tape attached to keep the bowel up in front. Dr. Russell here showed the form of clamp he used, a modification of the clamp originally designed by Pryor, with detachable handles, and he said that as he believed much depended on the kind of clamp used and the way they were used he had given considerable attention to the improvement of these clamps, and he was indebted to Messrs. Young and Son, Edinburgh, for the trouble they had taken to carry out his ideas. After inserting the long retractor in front to keep up the bladder the first clamp was applied to the lower section of the broad ligament now cleared on each side. These two clamps reached the peritoneum and included the

uterine arteries. The part of the broad ligament included was cut with scissors internal to the clamp and the cervix was in this way set free. A second set of clamps could now be applied to the middle third of the broad ligaments and they could then be cut through, but it was usually easy after the application of the first two clamps to pull down the body of the uterus anteriorly by successive grasps of vulsellum forceps. When the fundus emerged a clamp was pushed from above downwards on each side, either near the uterus leaving the ovaries and part of the tubes, or farther out grasping only the infindibulo-pelvic ligaments and including ovaries and tubes in what was to be removed. Scissors had again to be used to cut through the upper section of the broad ligament and detach the body of the uterus with or without the tubes and ovaries as might be desired. If not already secured and cut through, it was now an easy matter to apply clamps to the middle and less vascular part of the broad ligament and complete the removal of the uterus. The pelvic cavity and the stumps grasped by the clamps had to be rapidly inspected and cleared of clots. Dr. Russell emphasised the need for care in the application of the gauze tamponade at this stage. He had for some time arranged his iodoform gauze in a series of five or six folds, about three inches long, so arranged that the small folds lay next to the clamps and overlapped their upper ends so as to be absolutely sure that no part of the bowel should come into direct contact with any part of any of the clamps, but only touch the gauze roofing over the clamps and cut surfaces. The innermost fold of gauze was continuous with the gauze used to pack the vagina and surround the shanks of the clamps in the vagina, the greatest care being taken to have a layer of gauze interposed everywhere between the metallic clamps and the vaginal wall. The outer ends of the clamps with handles off, only projecting an inch or so from the vagina, were covered with the gauze and gave rise to no inconvenience. The catheter was always used at this stage to demonstrate the condition of the bladder. On the second morning after the operation, he now gave the patient an anæsthetic and removed the vaginal gauze sufficiently to allow detachment of the clamps. The specially folded part of the gauze was pulled out last of all and the roof of the vagina was carefully inspected with the help of retractors. A sufficient packing of gauze was then inserted to support the vaginal roof and the after-treatment of the case was quite simple. The description of the operation was illustrated by a series of line drawings and several specimens were exhibited to show differences in size, structure, and complication capable of being treated satisfactorily by the operation as above described, or by additional means such as incision of the anterior uterine wall and unfolding of the enlarged uterine body, or complete hemisection of the whole uterus, or morcellement of the tumour.

Dr. EDGE (Birmingham) said he was strongly against the routine use of clamps in vaginal hysterectomy because they were painful, caused sloughing and foul discharge, were difficult to apply in complicated cases, and were unsafe. In his hands the clamps (Dozen's) had broken in one case, fortunately after the vessels were sealed up, in another case removal of the clamps was followed by arterial bleeding, necessitating ligature of the uterine arteries. Clamps were successful in simple cases and were useful to check oozing at the base of the broad ligaments; but his general experience led him to say " Don't use clamps."

EDINBURGH OBSTETRICAL SOCIETY.

A Meeting of this Society was held on Wednesday, June 11. Dr. HAIG FERGUSON (the President) in the Chair.

Dr. JOHN MCGIBBON exhibited a

SPECIMEN OF RUPTURED EARLY INTERSTITIAL PREGNANCY.

Dr. D. BERRY HART read his paper

"ON THE PRESSURE EXPERIENCED BY THE FŒTUS IN UTERO DURING PREGNANCY: WITH SPECIAL REFERENCE TO ACHONDROPLASIA (CHONDRO DYSTROPHIA FŒTALIS)."

The question of the cause of achondroplasia has been recently raised by Dr. Murk Jansen in an interesting monograph on this subject, and also in a paper in the *Journal of Anatomy and Physiology* for April of this year.

Briefly, Dr. Jansen believes that local pressure on the affected bones, by excess of liquor amnii or by amnion tension at an early period of fœtal life, causes the deformities in the bony skeleton of the affected fœtus.

The pressure of the liquor amnii or of the amnion, is not the only pressure the fœtus is subjected to: one must add to that the general intra-abdominal pressure. This is a general not a local pressure, and even if we admitted that it could act on certain parts by the fœtus only, it is highly doubtful if it would affect the points selected in any injurious manner.

Alexis Thomson and Symington showed in 1892 that the bones affected in achondroplasia (upper and lower limbs, basis cranii, ribs, pelvis) were those developed in early endochondral ossification, that is in a special group of unit characters from a Mendelien point of view. One may therefore regard achondroplasia as a hypoplasia in this group, due to a loss of a stimulus during fœtal growth, and this loss Dr. Hart referred to a loss of the determinants of this specific influence at the maturation of the germ-cells and sperm-cells at fertilization (see, however, *Edinburgh Obstetrical Transactions*, 1910, 1911, p. 83, and "Guide to Midwifery," p. 620).

The difficulties as to Dr. Jansen's theory may be summed up as follows: (1) The pressure of the liquor amnii is an equable not a discrete local one. (2) The pressure is that of the liquor amnii and the general intra-abdominal pressure. (3) There is no evidence that a pressure compatible with fœtal life would injure local parts. (4) The statement, "That abnormally high amnion pressure is able to disturb the nutrition and growth of part of the fœtus, without interfering with the normal process of development of other parts of the body," seemed to him to be more of the nature of a hydrostatic and pathological paradox than of a satisfactory explanation of this striking deformity.

The PRESIDENT then gave an account of

AN UNUSUAL CASE OF HYDATID MOLE, DEALT WITH BY ABDOMINAL HYSTERECTOMY.

The patient, 49 years old, was almost exsanguine when he was called to her after she had been bleeding for nearly four months. She was three months' pregnant. The cervix was hard and a sound could not be inserted and the successful treatment adopted, although not orthodox, and carried out in the country under the most trying of circumstances, was considered the only one which could have saved the life of the patient.

A second case of hydatid mole of a similar nature was brought forward by Dr. BALLANTYNE. The patient died five minutes after she came under

notice at the end of a long ambulance drive. Post mortem examination exhibited a uterus of the third month enlarged to the size of a six months' pregnancy.

PATHOLOGY OF HYDATID MOLE.

Dr. JAMES YOUNG described the pathological conditions present in the two specimens. They afforded a unique opportunity for this study as altogether only three or four specimens had been recorded in which the mole was obtained *in situ*. In the first case the uterine wall was about one-third of an inch thick. It was uniformly expanded by the mass of expanded villi imbedded in blood. Towards the front the uterine cavity was seen and covering the mole and separating it from the cavity there was a fine layer of fibrinous material—the decidua reflexa. In other words, the mole was still enclosed in the uterine mucous membrane. Microscopically the villi were found to lie close against the uterine wall, from which they were separated, however, by a layer of decidual tissue. In this the vessels were expanded and there was marked œdema and hæmorrhage. In this region there were present the vessel and tissue changes which Dr. Young had previously demonstrated in the maternal tissues in association with chorionic activity. At no part was there any evidence of a malignant invasion of the muscles. There was all round the mole a marked proliferation of the chorionic epithelium, and in places the epithelial masses were hollowed out into channels containing maternal blood similar to the appearances described by Peters in the early trophoblast. The membrane covering the free surface—the reflexa—consisted of degenerated fibrinous tissue. On the opposite side of the uterine cavity the decidua vera was present.

The second case showed similar appearances. The mole was imbedded in the uterine mucosa and was separated from the uterine cavity by a reflexa which was thicker than that present in the preceding case. It contained decidual cells. In this case, also, there was no evidence of a malignant invasion.

The important points revealed by both specimens were that: (1) The mole attained the large size it reached in both cases whilst it was imbedded in the mucosa. In both cases the uterine cavity was intact. The condition thus corresponded to that present in the earlier stages of the development of the normal ovum. (2) The bleeding was due to rupture of the decidua reflexa. It was obvious when this occurred, either as the result of erosion or from mechanical causes, that the entire extent of the greatly expanded intervillous space would be tapped. Into this large maternal vessels poured their blood, and until the mole was extruded or removed the bleeding would continue.

REVIEWS OF RECENT BOOKS.

"Röntgentiefentherapie an der Freiburger Universitäts Frauenklinik." By Dr. C. J. Gauss and Dr. H. Lemcke. With an Introduction by Professor Krönig. Price 17 marks.

Professor Krönig, in his introduction to this important work, claims that it is now possible to cure almost all cases of myoma and of uterine hæmorrhage without operation.

The work is the product of the Freiburg School of Radiography. At the Freiburger "Frauenklinik" Professor Krönig and Gauss have four Röntgen installations in constant use for some ten hours a day.

Briefly, the improvements introduced into the technique consist in the use of thick filters, 3 m.m. of aluminium lined with three layers of paper, the use of hard *x*-ray tubes, absolute skin protection, and heavy dosage. The skin protection is ensured by the use of many points of entry, and efficient protection by filters.

The technique has been carefully elaborated as the result of many experiments on the physical properties of *x*-rays and the relative values of filters of varying thickness.

In a series of early cases the technique advocated by Altus Schonberg of Hamburg was used, and from this the present Freiburg technique has been evolved.

The first part of the book is devoted to a theoretical discussion of the physics of deep irradiation and is admirably dealt with, the subject is treated at great length and is illustrated by a number of physical and biological experiments.

The book concludes with a history of 200 cases; a consideration of these demonstrates the gradual development of the technique from the commencement when small doses were given, to that of the present day when enormous irradiation, distributed over many points of entry, are given in a few days.

With the increase in the number of points of entry the intensity of the irradiation has greatly increased as has also the thickness of the filter employed.

An analysis of the cases quoted reveals the great value of the *x*-ray treatment of uterine myoma, in selected cases.

Time must of course be allowed to elapse in order to prove the permanency of the results, but if the percentage of cures should fall far short of that claimed by the authors, it will still show a remarkable degree of success in the treatment of those conditions.

It is well to emphasise the need for care in the selection of the cases for treatment, such cases should be at or near the menopause, and stress should be laid upon the need for expert gynæcological examination of all cases about to be treated. Any case with a suspicion of malignancy should not be subjected to *x*-ray treatment if an operation is possible.

The book is admirably written and shows evidence of painstaking investigation of obscure points in dosage, filtration, and the condition of the *x*-ray bulb.

It forms a valuable contribution to the list of diseases which yield to *x*-ray treatment, and should be of immense value to all gynæcologists and radiologists interested in the new method of treatment.